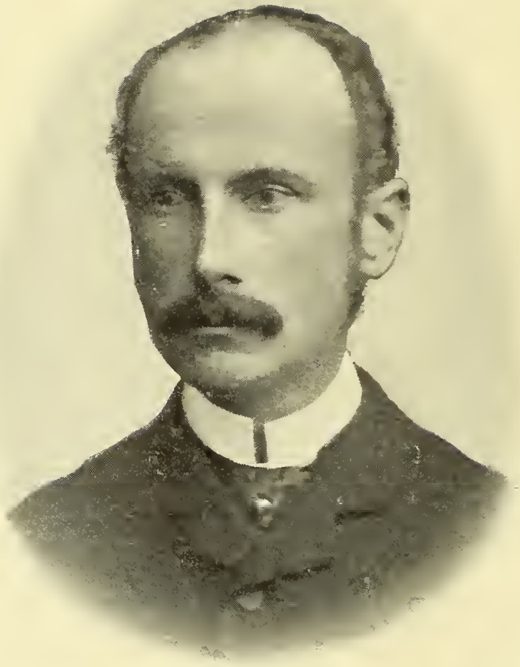

REGINALD BEAUCHAMP DOWNALL.

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"PIONEERS OF THE PLANTING ENTERPRISE IN CEYLON."

(Second Series.)

REGINALD BEAUCHAMP DOWNALL,

PLANTER AND M.L. C.—1863—1888.

LEAVING England early in 1863 by a sailing-ship, R. B. Downall arrived in Ceylon during May following, after the long voyage viâ the Cape of Good Hope. He was at once posted by Messrs. George Wall & Co., as assistant to the late Watkin William Wynn on Kent and Ambokka estates, Matale West. He was the son of Archdeacon Downall of Okehampton and we recall the fact of a local Devonshire paper being sent us by an illnatured friend, in which the fond father had rather foolishly published long extracts from his young son's letters, never meant for other eyes than those of the domestic circle, while he wound up with the statement that his son had qualified both in Bookkeeping and in the Tamil language on the voyage, so that he was at once put into a responsible charge as manager of a plantation on his arrival in Ceylon! We took care at the time, that no extract was made from the innocent communication into the *Observer.* The Archdeacon—who was greatly attached to his Ceylon son—died in 1872; and Mrs. Downall and daughters then retired to Barley, near Exeter, which was Mr. Downall's home in England till his mother's death.

Mr. Downall did not long remain an assistant on the Matale estate; for, in our Directory of 1864-5, we find him transferred to Dolosbage as manager of Kalugalla estate, and with that, we believe, he combined a certain proportion of duties as Visiting Agent or Inspector of Estates—an unprecedentedly early appointment. A little later we find Mr. Downall a full-blown Visiting Agent, residing at Peradeniya and representing Geo. Wall & Co.'s firm in Kandy. This continued —with the exception of a holiday trip to England —up till 1874, when we find, still as Visiting Agent and Justice of the Peace, Mr. Downall occupied Barnes' Hall, Nuwara Eliya, where he continued up till 1877 or so. Then came his purchase of Mr. G. A. Crüwell's plantations and Mr. Downall went to reside on Dambatenne, Haputale. In 1876 Mr. Downall was, for the first time, elected Planting Member of Council, a post which he vacated on going home in 1879, to resume it again on his return the next year; but he once more retired in 1882 to have a brief spell at home; but again resumed in 1885 and continued in that honourable and onerous post until his final retirement from the island was compelled by fatal illness in 1888.

Such is the briefest possible summary of Mr. Downall's public career in Ceylon. To fill up the details and before going into particulars with which we are more especially acquainted, we have been favoured with two accounts by old and dear planting friends who knew him from the outset of his life in Ceylon to his sadly premature end. First, we have that of a gentleman, who was like a brother, his family and that of Mr. Downall being friends at home, and

as both the young men started from England about the same time—Mr. Downall leaving a month earlier but arriving a month later, because his friend came overland—there was always a friendly rivalry as to how the two "boys" were getting on. The following was written for us to use with our own notes, but amalgamation would spoil all its freshness and we trust we may be pardoned by the writer for giving the contents of his MSS. separately and *verbatim*:—

"It was either in February or March 1863 Downall left England in a sailing ship bound for Ceylon 'round the Cape,' and reached Colombo at end of May or early in June: he was accredited with letters of introduction to the late G. Wall—amongst several others—and Wall sent him up to Matale as assistant to W. W. Wynn.* 'Dick Mackay,' who resided in 'Jolly's Bungalow' overlooking the Kandy lake, was then Visiting Agent to Geo. Wall & Co., and was evidently so much struck with Downall, that not only did they become great personal friends, but on Mackay's leaving for England 18 months after Downall's arrival, he so strongly recommended the 'youth' to Geo. Wall that the important post of Visiting Agent was offered to him. Well do I remember his telling me about the offer, and his asking my advice as to his accepting it. Although I had had a month's start of him in planting, I replied that I certainly could not accept it, as I did not feel competent, but that that was no reason why he should not. However, accept it he did, and if there have been better V.A.'s in Ceylon I have not come across them! His taste for sport soon showed itself, and in 1865 he took over from William Taylor—then of Dolosbage—the following hounds:—Bluebell, Bashful, Mooneandy, of course a great favourite with the 'dog boy,' and also Sailor and Fly, a pair of Kangaroo hounds purchased in Colombo. The nucleus of a pack was thus started in partnership with C. Fetherstonhaugh, who kept them on Kirkoswald: then under the guidance of that cheery and most hospitable planter James McDonald. The mysteries of 'elk hunting' were soon acquired. In addition to hunting on Bogawantalawa and Bopatalawa, and afterwards in Nuwara Eliya, our friend seldom lost an opportunity of visiting the 'lowcountry' in pursuit of big game after which he met with a very fair share of success. Indian jungles, he also visited, and scored his 'tusker,' in company with T. S. Dobree. During his sojourn in the East he also went in pretty heavily for horse-racing, both in Ceylon and India. Perhaps of all the horses he ever raced 'Grandmaster' was his favourite, and he was only once beaten and that was at Peradeniya, where with a crushing weight, he was kept a little too much in the rear to allow of his 'getting up' when the 'pinch' came. I think Tom Reynolds* was about the first to take in the situation, and I can hear *now* the shout Tom R. gave 'Grandmaster has shot his bolt'! and so the good horse had. I forget the name of his favourite Arab, a rare good one, and of which he was so fond that he shipped it home to improve the breed of the Exmoor ponies.

"R.B.D.'s first venture in coffee was 'Middleton," in Dimbula, for which I think he paid £2,000—no trouble about 'exchange' in those days when all was £ s d.—and a right good purchase it proved.† Then in time he became the proprietor of Cruwell's Haputale places—now Lipton's—which also did well for him so long as coffee remained 'King.' His worst purchase was Monaragalla (or Monarakanda) which practically ruined him, for with the exception of the bumper crop it gave the year of his purchase, it simply absorbed all the annual profits of the other Haputale estates to keep it agoing. Few have met with a greater variety of the ups and downs of life, of sport, of success, than he of whom this is written. At one time he could have

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* Mr. Downwall's first, and only, "Periya Durai," Mr. Wm. W. Wynn, was himself an old, esteemed and notable planting Colonist of the well-known Welsh family of his name. We met him first in the "sixties" on the Borders Estate, Matale, and we are tempted to quote from a letter written after retirement with reminiscences of his Ceylon days:—

"Myddleton House, Monmouth, England 19th June 1894.

"Dear Mr. Ferguson,—The last time I saw you was in your office in Colombo in July 1889, when I called to wish you goodbye on the eve of my leaving for the old country after an *unbroken residence in Ceylon* of *43 years*. And here I am now as hearty and strong as ever, and able to enjoy a day's fishing, of which I get plenty and *good*. It occurs to me at this moment to ask you if you remember '*the first time* we *met*,' the *when*, and the *where?*—The *where* I well remember, but the *when* 'tis so '*long, long ago*,' that I have forgotten quite. The *where* was at good Abercrombie Swan's Bungalow, *The Borders*, and I daresay you remember how his gallant army of sepoys charged down upon us, with fixed bayonets, when we were standing on the Barbecue, and how we took refuge *under the store!*

"Most extraordinary weather, *19th June*, and *no Summer yet*—not even one Summer's day. With kind regards,—Yours very truly, 'WATKIN WM. WYNN."

Mr. Wynn died last year (1896) at Monmouth.

* "Tom Reynolds," well-known in those days and for years afterwards, as "T.K." which came to him in this wise: a group of friends were critically examining a newly imported Australian horse, branded on the near shoulder "T.K," when some one said what on earth can T.K. stand for? "Why, *Tom Reynolds* begorra!" says Tom Reynolds in a brogue, you could knock clumps out of with an old mamotie!

† Mr. Downall's favourite manager at this time and for many years was Mr. H. G. Mackenzie who was as much attached to, as he was trusted and liberally treated by, one of the best employers and proprietors in the long list connected with Ceylon. —ED. *T.A.*

cleared out of Ceylon with at least £100,000 to his credit; but it was not quite enough, so he stuck to it a little longer; and like a great many others, a little too long for coffee, and yet not quite long enough, for tea; but he was fighting against adversity as pluckily as any one ever did, and was on the right road to 'pull round,' when he was overtaken with the incurable disease which handed our good friend over to the 'majority' on 5th Dec. 1888."

We have been favoured with another account which we think ought also to be read by itself without incorporation in a general memoir as was meant by the writer when, on boardship, he dashed off the appended interesting notes of his dear friend of long-standing at our request. This gentleman shared bungalows wlth Mr. Downall for many years :—

"I first met R. B. Downall early in 1866 on my return from England, when I went to live in Kandy. He was then living at Peradeniya bungalow on the old sugar estate, which continued to be his headquarters till he went to reside at Barnes' Hall, Nuwara Eliya. I believe he arrived in Ceylon in 1863 and commenced life as a coffee planter under W. W. Wynn on Kent and Ambokka estates in Matale North. Whilst he was there he and Wynn made one or two shooting trips to Kanthalai tank on the road to Trincomalee which he never forgot. After leaving Kent and Ambokka I believe he for a short time took charge of Kaloogalla estate in Dolosbage when George Wall appointed him his Visiting Agent, and he was acting in that capacity when I first met him in 1866. When not visiting, he used to attend G. Wall & Co.'s office in Kandy daily. Although he had been a planter such a short time (only two or three years) Wall discovered his ability and appointed him his Visiting Agent. Though Downall's *practical* knowledge at that time was limited, he did all his work most thoroughly and conscientiously, and was most particular in seeing that no unnecessary expenditure was incurred on any of the estates he visited. George Wall had the greatest confidence in him, and Downall gained experience rapidly. In 1866 he owned half of Middleton estate, Dimbula, with Elliott, and he subsequently purchased Tangakelle I think in 1869? In 1877, he sold these estates and purchased Dambatenne and Lemastota in Haputale from Crüwell, also Barnes' Hall, and soon afterwards Monerakande estate from J. T. White and H. Bois. From that time coffee in Haputale began to decline, and poor Downall died hopelessly involved. He had paid much too large a um for Monerakande estate. If he had been content with Dambatenne and Lemastota, he might have pulled through. During the last two or three years of his life in Ceylon he gave up Barnes' Hall, Nuwara Eliya and went to manage his Haputale estates and lived first at Monerakande and afterwards at Dambatenne. I stayed with him two or three times at each bungalow. On the occasion of my last visit I met him at the top of Dambatenne, (having crossed over the ridge from Nayabedde). He was superintending a large gang of coolies cutting out young coffee to make room for tea, and expressed his doubts as to whether he was acting wisely or not! At that time the coffee was suffering from green bug as well as leaf disease.

"In 1868 I went to live with Downall at Peradeniya and we lived together till he went home in 1870, when he left me his power of attorney. We were both fond of animals, and at one time we had two small elephants, besides elk, spotted deer and other pets. One of the elephants Downall brought up from Hambantota after a shooting trip, having shot the mother. When he went home in 1870 it went to the Kandy Temple, and it now takes part in the Perahera every year. It is a female. The other small elephant, which was given to us by Capt. Rudd of the 59th Regiment died soon after it was sent to the Dewa Nilame with the other one. Downall was very fond of sport of all kinds. He had taken to racing when I first knew him in 1866, and he was then part owner of 'Grandmaster' one of the best horses that ever came to Ceylon. Downall continued to keep race horses up to a short time before he died. He was also fond of cricket and used to take part in the annual cricket matches at Kandy from 1866 to 1870, viz., Keir, Dundas & Co. (captained by W. Martin Leake) against the World. He afterwards started a cricket club at Kandapolla, Haputale, and took great interest in it up to the time of his death. He took several shooting trips after big game both in Ceylon and Southern India. He was far from well when he went on his last trip to Travancore and never recovered. When he lived at Barnes' Hall, Nuwara Eliya, he kept a pack of hounds and gave excellent sport to his numerous friends.

"In 1876 he succeeded me as representative of the planters in the Legislative Council, and continued to represent the planting interests on and off up to the time of his death. He rendered most valuable services to the planting community in the Legislative Council, especially in respect to railway extension to Haputale. He spared no pains nor trouble in pushing forward any good work and in making sure of his facts. He was very independent, and his opinion always

carried great weight. We served on the Haputale Railway Extension Commission together.

"On the 6th August, 1888, I received a telegram from Downall from Marseilles at Freshwater asking me to meet him at Charing Cross that evening. I did so. He could scarcely walk. I got him to Long's Hotel, Old Bond Street. All the doctors he wished to consult were out of town, it being August when doctors take their holiday. I went to Sir Joseph Fayrer, he did not go out, but he recommended me to call in Dr. J. Anderson who attended Downall up to the last, and a great friendship sprang up between them. On the 7th August, Downall was removed to a private hospital, Fitz Roy House, where he underwent a most serious and painful operation which, however, did no permanent good. On the 16th October, 1888, Downall was removed to his sister's house at Flax Bourton, near Bristol. I saw him off at Paddington. He was almost in an unconscious state. He died on the evening of 5th December, 1888, at Flax Bourton, and his remains rest in the pretty little churchyard there. We were always more than ordinary friends, and I was with him as much as I could be during his last illness. He died of *cancer* in the stomach."

We can add little to the above extremely interesting details of the late Mr. Downall's personal life and sporting and planting career in Ceylon. We first came into close contact with Mr. Downall when he entered the Legislative Council, although we knew him as an occasional contributor to the *Ceylon Observer* before then. We very speedily recognized the single-mindedness of purpose and devotion to duty of the new member, and he having become a Haputale planter in 1877, entering into "the shoes" of Mr. G. A. Crüwell, we found little difficulty in interesting him in the agitation for Railway Extension from "Nawalapitiya to Haputale," which we had personally initiated in 1872, and in which we had the cordial support from the outset of Messrs. C. Tottenham and G. A. Crüwell. All through the administrations of Sir James Longden and Sir Arthur Gordon, Mr. Downall did yeoman service in Council in the cause of Railway Extension, while not neglecting his other duties as Planting Representative. In the first place we fought together during the closing term of Sir Wm. Gregory's administration and the early years of Sir James Longden's rule, to secure, if possible, sanction for one contract from Nawalapitiya to Haputale. But it was after the decision to cut the line in two and extend only to Nanuoya that the real struggle took place, in which Mr. Downall, as chief of the Uva Planters and M.L.C., bore a leading part. Here, for instance, is a very brief *resumé* from the record of these years of hard work:—

1879, Oct.-Dec.—Agitation renewed in Legislative Council for Extension to Haputale, by Mr. Downall in what became an annual motion every session up to 1886-7; Mr. Ramanathan cordially supporting the proposal until he recanted early in 1886.

1880.—Memorial from the Haputale Planters to the Governor; and general appeal (Dec. 7) from inhabitants of Uva to the Secretary of State, Lord Kimberley.

1880-1881 and 1882 employed in trying to urge on Sir James Longden and to get sanction of Secretary of State.

1883, Dec. 29.—Full letter (with Map) from A. M. & J. Ferguson to Sir A. H. Gordon, on his arrival, reviewing the position of Railway Extension to Uva.

1884, June.—Interview of Mr. J. Ferguson with Hon. Robt. Meade at Colonial Office to urge the sanction of Extension to Haputale.

1884-85.—Waiting for Sir Arthur Gordon to make up his mind—which he did by 1886

1886, Feb.—Ceylon Agricultural Association opposes and memorializes against Railway Extension to Haputale. Mr. J. Ferguson publishes a series of letters in a pamphlet on Uva, in reply.

1886-7.—Period of strong Despatches, Uva Memorials, and much local agitation, in which Mr. Downall bore a leading part, for Haputale Extension.

1887, March 29th.—Trenchant and long Despatch of Sir A. Gordon to Sir H. T. Holland confuting Mr. Stanhope's Despatch of January 7th, 1887.

1888, March 20.—Sanction of Haputale broad gauge Extension received by Sir Arthur Gordon in Colombo, Sir H. Holland's Despatch being dated Feb. 20th.

One of Mr. Downall's best efforts in Council on behalf of the Uva Railway was in 1879, and his speech on that occasion covered nearly 5 pages in the close type of "Hansard." He was supported by the whole of the unofficial members, and both the Governor and Colonial Secretary spoke accepting the motion.

In connection with this memorial notice we have been turning over many old papers and much correspondence, and as evidence of Mr. Downall's heartiness and earnest desire to see the great work completed, we think a few of his letters may be given here. First, however, we may quote from the proceedings of the Haputale Planters' Association of which Mr. Downall was a leading spirit in September 1884; we had just returned from the old country where we had done all we could to restore confidence in the Ceylon planting industry, and to influence officials in favour of the Uva Railway. Accordingly, the Haputale P. A. on 26th September carried the following resolution:—

"That this Association do record its appreciation of Mr. John Ferguson's letters to the English papers with reference to the planting interest, and that the Secretary be requested to convey the thanks of the Association to that gentleman for the same."

This was followed a few days after by a letter from Mr. Downall:—

"Moonerakanda, Koslanda, 1st October. 1884.—My dear Sir,—I am very pleased to be able to welcome you back. I must thank you for the handsome edition of your book which arrived safely at Barley; also I fancy I have to thank you for a copy of 'The (London) Times' containing your letter (on

Ceylon Planting affairs and Railway Extension) which I read with much interest.

"We must work away again at the Railway Extension. We may yet get it I think. My idea is an Extension on any gauge that may be feasible. I have not as yet had any conversation with the Governor on the subject. I may be in Colombo about the end of the month, and shall hope to sse you. —Yours truly, R. BEAUCHAMP DOWNALL."

An interval of a couple of years of hard fighting in Council and the Press followed, and to show that Uva planters were not uninterested, we may give the following, not published before:—

"Badulla Planters' Association, Badulla, 20th Sept., 1886.

"Messrs. A. M. & J. Ferguson, 'Ceylon Observer' Office, Colombo.—Dear Sirs,—I have much pleasure in forwarding copy of a resolution passed at a General Meeting of this Association held in Badulla on Saturday the 11th September current.—I am, yours faithfully, ALEXANDER T. RETTIE, Secretary.

"*Copy of resolution referred to*:

"Resolution proposed by R. P. Macfarlane, Esq., seconded by A. T. Rettie, Esq., and carried with acclamation:—'That this Association desires to express its deep sense of the exertions made by the 'Editors of the "Observer" in the cause of extending 'the Railway to the Province of Uva, and more 'especially the late exertions of Mr. John Ferguson 'to whom this Association desires to express its 'best thanks.'—A. T. R."*

Still, there were two more weary years to follow—the more trying, because of "the split in the camp" which sent a number of the Badulla planters especially, after a narrow gauge to which Governor Gordon said at once he would be no party under any circumstances,—that is so far as to break gauge at Nanuoya. So decided an expression of opinion on the part of the Governor settled the matter in Mr. Downall's judgment, and he and the *Observer* with the majority of Uva men, never swerved in their support of Sir Arthur Gordon who was now deeply committed to Railway Extension without break of gauge until Uva was entered. Here is a letter written after a great meeting in Kandy where the Badulla representatives were induced to give support to a general resolution in favour of Extension:—

"The Hill Club, Newera Eliya, 25th February, 1887. Dear Mr. Ferguson,—I have just read your railway articles with much interest and satisfaction. The resolution in Kandy was carried not merely *nem. con*; but *unanimously*. Messrs. Rettie, Hoseason, and other Badulla representatives agreeing to the wording as finally adopted without *any* hesitation.

"I think the opinions I heard expressed after our P. A. meeting are correct ones, that the proceedings generally were characterised by moderation and common sense. *Entre nous*—H.E. is *with* us on this medical question.—Yours faithfully,

"R. BEAUCHAMP DOWNALL.

"H.E. was quite satisfied with the railway resolution, at least he told me so.—R. B. D."

* These are given as bearing on Railway Extension and coming from Uva with which Mr. Downall was so closely identified: on February 17th, 1879, a formal Resolution to the same effect had been carried in the Parent Association, Kandy.

At length in March 1888—sixteen years after the commencement of the agitation and nine years after sanction to Nannoya—came the telegram from Sir H. Holland (afterwards Lord Knutsford) to Sir Arthur Gordon sanctioning Extension to Haputale, the Despatch being dated Feb. 20th. Here was Mr. Downall's genial deliverance on the achievement of a result for which he had worked and fought and waited so long:—

Dambatenne, Haputale, 19th March, 1888.

"Dear Mr. Ferguson,—Congratulations all round—please accept mine yourself and convey them to your senior. It is indeed satisfactory to know that the great question is now undoubtedly settled, and that the Despatch is quite unconditional and unqualified, for it sanctions Extension to Haputale on the present gauge; of course *that* was a foregone conclusion.—Yours faithfully,

"R. BEAUCHAMP DOWNALL."

It was characteristic of the writer that in the same letter he should make inquiry about the Collectorate of Canara whither he intended proceeding on a shooting expedition though far from well. Indeed, for some years Mr. Downall had been suffering from the after-effects of a dysenteric attack (we believe) that would have made anyone less high-spirited and plucky, extremely careful of himself. Nothing could keep him from his usual active pursuits. After he took up his residence in Haputale, he became the very life and centre of the district, showing a bright example of attention to planting duties, but at the same time ever ready of a Saturday afternoon for the local cricket practice or match, or ready at intervals to captain the district team in competition with other districts or town teams. But this was not all; he would also have his occasional sporting tour either to the lowcountry or to India, in either case running risks which were not for him in those latter years in view of internal trouble. We recall well a pressing invitation he gave us to visit him at Dambatenne in Feb. 1886; he was expecting Governor Gordon on his first visit to Haputale viâ Ratnapura and Balangoda, and on his way to inaugurate the new Province of Uva. With great regret we had to forego the Dambatenne visit, only having time to get direct to Badulla for the vice-regal tamasha. Riding down from Nuwara Eliya, halfway to Wilson's Bungalow, we met Mr. Downall riding up. He had entertained the Governor the night before, the whole district gathering to present an address, and after seeing His Excellency and suite start for Badulla, he (Mr. Downall) had left the estate and was on his way to Southern India. Questioned as to his object, at a time when we knew he was in far from robust health, he said he had never shot a bison, and must do so before he went home, so he was on his way to its native haunts. It was again characteristic of Mr. Downall that

he maintained his faith in coffee up to the very end. We have a letter dated February, 1887, in which he got quite angry with the *Observer* for publishing a correspondent's sneer at coffee in Uva as being as much doomed there as anywhere else in Ceylon; the writer went on to say that tea would more than fill the place of coffee and fully justify the railway; but still Mr. Downall was not satisfied. He wrote:—"Many estates have just given the best autumn "crop that has been gathered since 1878, and "the coffee looks in first-rate vigour after it." Alas! for the ever-sanguine as well as energetic proprietor of Dambetenne in the "eighties": well would it have been for him to have lost faith in the old staple, or rather to have gone in more extensively for the new king, a little earlier. But still he did a good deal in "tea"—he was never the obstinate or prejudiced planter who would learn nothing from his neighbour, and had only life been spared, there is no reason to suppose that he would not have reaped the benefit of the new staple to the full extent of clearing off all liabilities and finding himself sole owner of plantations which are about the most valuable in tea that Haputale can show in the present day.

And now in conclusion as to what kind of man, in person and character, was Mr. R. B. Downall. It has been well said that when a friend, loved and admired, passes away from us, there is a natural desire for something which may serve to give distinction and permanence to the impression which he made upon us in his lifetime. We trust that end has been in some degree met by what has been written above, and more especially by the contributions of two of Mr. Downall's nearest and dearest friends. It may be well though that we should recall in a few words the outward appearance: below the middle height, slender and active,—indeed in his early days "hard as nails" would best describe R. B. Downall in view of his constant exercise, riding and walking over plantations, cricket and hunting. He had a strikingly frank countenance, marked with lines indicating decision and responsibility and crowned by a notable forehead. It was natural that one who had made his way to the top of the planting "tree" at so early an age entirely through his own character and exertions, should be distinguished by an air of responsibility and command; but no one could be five minutes in his presence without discovering the really genial and kindly social character of the man. His smile brightened all about him and his laugh was contagious. But it is to the solid character and bright example of industry, energy and pluck that we would point at this time. No one could ever dream of associating a mean or dishonourable act even in the slightest degree with R. B Downall; while many acts of benevolence and of kindness to the bereaved and poverty-stricken will never be known till the day shall declare. No estate inspector or proprietor was more considerate towards those under him, or more desirous that Superintendents, conductors and labourers in his employment should all be contented and prosperous. Such then was this Ceylon Planter-pioneer of the "sixties,"—the chosen representative of his community in the "seventies" and "eighties,"—and we may add the most truly esteemed and widely loved of all the second generation of PLANTERS IN CEYLON:—

"Peace to the memory of a man of worth."

MEXICAN TOBACCO.

Ever since the dawning of what is called the "American Epoch" of Mexico, there has been a steady and continuous development in the exports of that country. The American Consul at the City of Mexico says, "That striking as are the facts with regard to the increase of the cultivation of coffee and the growth in the United States of a great appreciation of the Mexican berry and its sterling qualities, these can be paralleled in many points by the development of Mexican tobacco." Although France has not profited commercially by this increase, it is only simple justice to say that it is due very largely of Frenchmen and to the exiles from Cuba whom they employed. A French writer, Louis Lejeune, was the first to point out that the tobacco grown in the upper valley of the Papaloapam River produced leaves as fine, as silky, and even more aromatic and perfumed than those of the "Vuelta Abajo" in Cuba. He showed that the Plantations in the Pinar del Rio district of Cuba were exhausted, and that not even the most lavish use of fertilizers could enable them to produce leaves of the real Habana quality. He compared the western end of the island of Cuba to a dying fire, where one could find here and there points of living flame, but everywhere else ashes and blackened embers. M. Lejeune in his pamphlet made an elaborate comparison of the relative cost of starting a tobacco plantation in Cuba and in Mexico, and showed that, supposing silver to be at par, which it was when he wrote, the expenses in the latter were only one half of the former, without taking into consideration the price of land or the cost of transportation. He adjured his countrymen, who were enterprising, not to wander off to Cochin China, but to establish themselves in Mexico on tobacco plantations. Some did so, and at the last French exhibition those who had followed his advice received gold medals for the excellence of their production. For some reason or other the French Regie did not, until the fiscal year 1894-95. except Mexican tobacco, and, therefore, France has lost the benefit to which it was fairly entitled through the energy and skill of Frenchmen who created the initiative which has resulted in ranking the Mexican leaf with the Habana. Prior to 1889 the export of Mexican tobacco rarely amounted in value to 900,000 Mexican dollars in any one year (say £90,000), but in 1895 96 the value amounted to 1,700,000 dollars (£170,050). At first foreign countries imported Mexican cigars, but they did not give complete satisfaction, because boxes marked "Colorado," "Colorado Claro," and even the "Claro," when opened were found to contain "Maduros" and even "Oscuros." The supposition was that this was due to negligence in making the boxes, or even to fraud, because the light-coloured

cigars are preferred as being milder. This was a great injustice to the Mexican importers, who are most careful on these points. The enigma was solved by the discovery that Mexican tobacco ripened with remarkable rapidity, and that "Claros" became "Oscuros" during the short transit from Vera Cruz or Tampico to New York. The remedy was clear. It was to import the leaf and manufacture the cigars under climatic conditions that would prolong the ripening process. This led to a very brisk demand for leaf tobacco, and the Indians in the tobacco belt of Mezico were so foolish as to add corn shucks, grass dirt, and even stones to add weight to their bales; especially was this so in the case of that bought and shipped to Germany. The consequence was that there was a reaction, and the buyers for foreign houses would not look at any tobacco that did not bear the inspection brand of some well-known French, German, or Mexican house. Then the Indian growers were in despair and offered their tobacco for the price of seedling tobacco. American bnyers jumped at the price and thus the exportation to the United States for 1893-94 re ched the figure of 382,767 pounds, as against 70,107 pounds for 1891-92, but this was not maintained. Practically no wrapper tobacco is grown in Mexico. The leaf is all "filler." This is a virtue to those who like a strong cigar, easily smoked, but it is a defect for the general confumer who likes a milder article. When cigars were mostly made in Habana the wrapper was "Yara," and not the "Vuelta Abajo," for that very reason. A comparison for the prices paid for Mexican leaf tobacco by the various importing countries may be of interest. Germany, the chief importer, pays 37 cents per pound; the United States, 38 cents; England, 39 cents; Belgium only 29 cents, and France, only 25 cents per pound. The finest Mexican cigars go to Habana at one dollar 67 cents per pound; England gives 94 cents for Mexican cigars; France one dollar 10 cents, and the United States, 88 cents. In Mexico the soil is so deep that it is not necessary to plant a crop of corn after the crop of tobacco, and instead, the growers raise a second or seedling crop. After the plant has been cut, a stalk or chute springs abundantly, and from this stalk or chute spring small and very mild leaves, about the size of a man's hand. These are utilised by the manufacturers of cigarettes. To the factories in the country this tobacco is sold at from 2 to 5 cents a pound.. The cigarette tobacco is excellent and its reputation is very good. Colombia and Peru buy it in constantly increasing quantities at from 6 to 9 cents per pound, and Gautemala buys at 6 cents. All of the Central Americans and some of the South Americans buy the Mexican cigars and pay an average of 1 dollar 5 cents per pound. In a word, says Consul Crittenden, Mexico is not only one of the coming coffee countries, but is also a coming tobacco country. Mexico seems to be destined to wear the mantle of Habana in tobacco production, and once secured, it is safe to predict that it will never pass away, for the soil of the tobacco region is so deep as to be practically inexhaustible, being from 8 to 20 feet in depth, and in some places even 30 feet. Moreover its extent is probably one hundred times that of the Cuban tobacco region, when we take into consideration the fact that acre for acre the percentage of cultivated land at the present moment capable of producing tobacco of the very highest grade is greater in Mexico than it ever was in Cuba in its best days; we can from this easily see what will be the amount produced in the future. Mexico's resources in this direction are practically so great as to make it certain that it will become rich from its tobacco alone. No doubt the results will be finally to cheapen the "Habana" cigars, and put them within the reach of all. The tobacco lands of Mexico form an immense inverted capital T, the cross stretching from Tuxtepec, (Oaxaca) and the upper valley of the Papaloapan through the southern portion of Oaxaca into the Tehuantepec highlands, and thence into the state of Chiapas; the upright of the T stretches from the valleys of the Colorado and the Trinidad rivers (which form the San Juan river) eastward to the San Andres Tuxtla Canton. The cream of the tobacco lands will undoubtedly be found in the valleys of the Colarado and Trinidad rivers, but chiefly the latter. The soil in these valleys is from 10 to 15 feet deep, and of the very richest quality, and is equally adapted for coffee or tobacco. It may be taken as axiomatic as regards Mexico that the land that is good for one is equally good for the other. To the eastward of the main valley of the Trinidad river, in the transverse valleys, the soil is even deeper than 10 to 15 feet, and here one finds mahogany trees of the most astonishing size and of the finest quality. This region is called Las Monterias de Caoba, and is very extensive. Transportation is one of the most important questions which the planter in Mexico has to consider. In the Trinidad region he is close to the National Tehuantepec Railway, and he can also raft down to Vera Crnz, which town is reached by the small river steamers that ascend the river from Talacotalpam. He has two ports, Coatzacoalcos and Alvarado, Whenever the Railway from Corodoba reaches Tuxtepec, it will undoubtedly be extended to Juili on the Theuntepec line, and must traverse the Trinidad region, so that on the score of transportation one is reasonably assured being amply provided for in the present, with the probability of still more accommodation in the future.

NUTMEGS.*

The author of this book begins by saying how interesting he fonnd the study of the Nutmeg-tree, both true and false, during a period of eight years spent in the Eastern parts of the Malay Archipelago and in New Guinea. There these trees enjoy a climate exactly suited to them, and there, in consequence, is situated the centre of their distribution. There also they take the same relation to botany that Birds of Paradise do to zoology.

The claim of the Nutmeg for consideration as an article of commerce is connected with a series of romantic stories of its discovery in times long past, of the fierce war that raged among European countries for their commercial rights, of the combat for monopoly that ended in the extermination of the natives, and the break-up of the greatest merchant-company that has ever existed. All this eventful history is interwoven with the stillness of every grove of Nut-meg trees, and with the grand scenery of every inland lake.

With such words as these, the author commences a work which is, in its way, unique. He proceeds to treat of the history of the Nutmeg previous to the discovery of the Banda Isles, of the use that has been made of it in poetry, and of the philological history of the various names for Nutmeg and Mace.

The second part of the book is devoted to the cultivation of these spices, and includes a large amount of cultural detail and history. We are told of the strenuous endeavours made by the Dutch East India Company to preserve the monopoly, and how finally they were forced to relinquish it; and the author further reminds us of the exertions that were made with more or less success to induce the Nutmeg-tree to flourish and become naturalised in other localities. Dr. Warburg notes that at Syon House, Middlesex, very large fruits have been brought to perfection. It would be interesting to learn whether this tree is still flourishing. [No, it was removed some years since. ED.] In an appendix to this section of the book is a tabular epitome of the cul-

* "*Die Muskatnuss:*" the Nutmeg, its history, botany, cultivation, trade and value, also its imitations and surrogate. With a treatise ou the cultural history of the Banda Isles. By Dr. O. Warburg. With three heliogravures, four lithographic plates, one map, and twelve illustrations in the text. (Leipzig, Engelmann, 1897, 8vo, xii., and 628 pages. Price 20 marks.)

tivation of Nutmegs and Mace from the years 1634 to 1894—that is, during a period of 260 years.

The third and botanical division of tho book deals with the Nutmeg-tree itself, and numerous other spices that merit attention from a commercial point of view.

The fourth division is concerned with the cultivation, the fifth with the trade details. Not only the species recognised in commerce, but the false Nutmegs, and the substitutes for the genuine spice are fully considered. In an appendix to this section of the book are given detailed price-lists of Nutmegs and Mace.

The sixth section deals with the collateral products of the Nutmeg-tree, their commerce, and history. Among them are oil of Nutmeg, oil of Mace, candied Nutmeg fruits, candied Mace, and Nutmeg fruits in vinegar or salt.

In the seventh division the medicinal and aromatic products of the Nutmeg-tree are considered, and the poisonous qualities of the Nutmeg receive due notice.

In the eighth section the author considers the future prospects of Nutmeg cultivation.

Finally, there is a complete literary catalogue of some eighteen pages, which speaks well for the thorough acquaintance of the author with his subject. A very complete index greatly adds to the value of the book.

We congratulate Dr. Warburg on the completion of this work, which will serve as a model for all future books of the kind, no such complete monograph having before appeared. Everybody, be he botanist or gardener, chemist or philologist, historian, political economist, or merchant, will here find a wealth of information, whilst the general reader will find it a most interesting and instructive work to add to his library shelves.—*Gardener's Chronicle*, July 3.

GATHERING RUBBER IN THE FRENCH CONGO.

*By Mrs. Martha Nehne.**

1—FROM THE NEW YORK SUN.

In the months of March and April, during the rainy season, one sees busy life in the native towns of the French Congo. The men are preparing to go to the bush to cut rubber. Every woman and child seems to have something to do, and even tbe men do not lounge about as usual, but are sharpening their knives and *machetes* and putting their guns into proper trim. The women are digging *cassava* and some of them are washing it and preparing *chiguanga*, or native bread. Others are cleaning the *cassava* with knives and tying it into *mattets* made from palm leaves. This kind of *cassava* is roasted over the fire and eaten warm, while the bread is eaten cold and is mostly used on the road. The men carry their guns so that they may be prepared to kill the game which abounds in the forest.

When all is ready a drunken carousal and dance are given the night before the start by way of saying farewell to the villagers left at home. Sometimes a good place with plenty of rubber plants is found after a march of two or three days, but oftener the journey takes a week or more. In this case the men keep carriers on the road with food for them because there is nothing to be had in these parts with the exception of game.

The rubber in central Africa is not a tree, but a vine, often three or four inches in diameter. This vine generally climbs up the tallest trees, and the natives often use one of the vines to ascend the tree. After the branches are reached, which in most cases are at least fifty feet from the ground, the men proceed to cut the vines away at the top, leaving only one for their descent, and this one, if possible, not a rubber vine. It seems strange that the natives cut away the rubber plants and so destroy them instead of tapping them, but they are too lazy to learn any other way.

After the vines have fallen they are cut into lengths of three or four feet, and the juice is collected into iron pots. This is a tedious job. The piece of the vine is held over the pot, first by one end, then by the other until the juice ceases running. Then the piece is cut again to get at any juice which may have been left in the middle. After a pot is nearly full a rest is taken, and this juice is boiled for nearly two hours, and, during the boiling process, is mixed with the juice of other vines and some lime juice, so that the mixture is more sticky and easier formed into balls.

As soon as it cools down sufficiently to be handled the hardening rubber is shaped by winding it at first around a stick. After a bit the stick is pulled out and the ball is re-wound to finish it off. In some places these balls weigh three pounds or more each: in others, five of them make a pound. The purity of the rubber depends much upon how much other juice has been added. The best and purest is that obtained from the juice without boiling. This is only found in the shape of bracelets, because the natives wind the juice as it runs out around their wrist and let it dry there. When perfectly dry it slips off easier. This would be transparent rubber if the skin and fingers of the natives were not so very dirty.

The natives often used to put foreign substances, such as small stones, palm-nuts, and little balls of grass into the rubber ball to make it heavy. They were soon found out, and every ball is now cut through the center to reveal its mixture. Often the rubber is buried for some days because it draws the moisture from the ground, which adds to the weight. Cheating is resorted to because the pay is so poor. It takes a party of eight or ten men and boys six to eight weeks to gather from eighty to one hundred pounds of rubber. The value of this, if all is first-class, is from 200 to 250 yards of cotton cloth or forty gallons of rum or three or four flintlock guns. Surely this is poor pay for this kind of work.

Still, the natives rejoice greatly if the men from one town return with 100 pounds. It seems like a fortune to them, because they need so little that civilized people crave and pay for. When this little fortune is spent and the weather permits, another trip is undertaken to the rubber region.—*India Rubber World.*

* The writer of the information printed here is an American lady who for the past nine years has been a missionary in the Mayumba district of the French Congo.—The Editor.

Packing Seeds and Tubers for Long Journeys.—The *Chenil*, as quoted in the *Revue Scientifique*, mentions a method of forwarding and packing seeds and tubers which seems ingenious and practical, especially when the journey will be long, and warmth and dryness are likely to have injurious effects. The method employed by a Lot florist consists in moistening a little plaster, and imbedding the seeds, tubers, or rhizomes which are to be transported in this. This plan has succeeded well for packing rhizomes sent from Japan, roots of aquatic plants, the lengthened transit of which is always a difficulty. Enveloped in plaster, the plants, or pieces of plants are in no danger; they cannot become parched, and are kept in a satisfactory condition of partial moisture. It would seem that this plan would also succeed under other conditions—in Australia it is employed for the transport of fresh butter. The butter is made up into blocks with parallel and rectangular surfaces, to which are pressed glass slabs of the same sizes as the sides and ends of the blocks of butter. The edges are covered with gummed paper for greater security, and the whole is then covered with plaster to a thickness of 6 millimètres. Plaster being a poor conductor of heat, secures the butter against the variations of the temperature, and enables it to be kept longer than is possible under other methods of packing.—*Gardeners' Chronicle.*

AGRICULTURAL DEVELOPMENT IN JAMAICA—AND IN CEYLON.

The subject of "agricultural development is one that may be regarded as a continuous permanent topic of discussion in Ceylon. We can never exhaust it, for there is always some "new product" or some fresh development of existing industry which demands attention. Now our text is found in the interesting and instructive extracts we have been tempted to make below from a lecture recently delivered in Jamaica by Dr. Morris, C.M.G., of Kew, before the Governor and a large body of the residents. This lecture was followed by an animated discussion in which the Governor bore his full share; and if it be true that Sir Henry Blake is erelong to succeed Sir Charles Mitchell at the Straits, with the reversion some years hence, possibly, of the Governorship of Ceylon, a more than ordinary interest will attach to his views and to his personal experience of agricultural development. Dr. Morris travelled over a wide range of subjects: he is particularly sanguine over the prospect opening before Jamaica of developing a great fruit-growing industry and export to meet the yearly growing demand from the United States. We need not follow him in all he says under the head of "bananas, grapes, oranges, grape-fruit, pine-apples, tree tomatoes," or even "potatoes." It may be hard to say what Ceylon could do as a rival with existing fruit-exporting countries were her resources properly tried and with the aid of refrigerating rooms in ocean mail steamers. But, apparently, that time has not come yet; and we are more concerned, practically, with what he tells us about ginger, tobacco, fibres and agricultural teaching. What Dr. Morris says under the last heading is of special interest. He believes in agricultural teaching: he would begin even in the elementary schools, and the sooner the two "Readers," so much praised, are introduced into Ceylon, the better for the rising native generation; while, undoubtedly, to follow up such elementary learning, there ought to be a special Agricultural School or College in a Colony like Ceylon. Strangely enough, Dr. Morris did not give much encouragement in reference to fibres —Ramie, Rhea or China Grass (all three exchangeable terms) was the only one suited to Jamaica, and even for it he spoke very cautiously, although he was met eventually by good reasons from the Governor why the people of Jamaica should do a good deal in Ramie and Rhea growing and preparation. So, in respect of "rubber," Dr. Morris is afraid to encourage any ventures, because of the continued large developments of original sources of wild rubber in so many parts of Africa. But we scarcely think Dr. Morris makes sufficient allowance for the constantly widening and increasing demand for rubber;—the thousand-and-one uses it is put to, which were not dreamt of a few years ago, and the thousand-and-one additional uses which the next dozen years or so may bring to light. Then, if we bear n mind that to plant and bring a rubber plantation into bearing, requires ten to a dozen years, we suspect there is every reason to anticipate a widened demand and a lessened supply from Africa, as from South America, the Eastern Archipelago, Assam, &c., before A.D. 1907-9 is upon us. Agriculture and planting everywhere have their attendant risks, in all their branches; but in Ceylon—following the Heneratgoda experience as tabulated by Mr. Willis—we consider Para Rubber Culture as safe an industry as and which can be recommended to capitalists any planters who are not in a hurry for immediate returns.

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ARICULTURAL DEVELOPEMENT IN JAMAICA.

EXTRACTS FROM LECTURE BY DR. MORRIS, C.M.G.: GOVERNOR SIR HENRY BLAKE IN THE CHAIR.

BANANAS.

The cultivation and export of bananas are industries of very recent growth. In 1886-1887 the value of the bananas exported from the Colony was £145,959. Last year the valne had increased to £315,821.

I am aware that the prospects of the banana trade with the United States are not so favourable as they once were. It is therefore of great importance that new markets should be fonnd and the recent trials of shipments of fruit to England deserve to be fully followed up.

GRAPES.

At last in Jamaica, thanks to the initiative of His Excellency the President, grape cultivation is now being generally taken up in the neighbourhood of Kingston On the table tonight are fine samples of Black Hamburgh Grapes grown at the Hope Plantations. It may be possible before long to supply all local wants in this delicious fruit and eventually export some of it in the early winter months to New York where fresh grapes would be greatly appreciated and command high prices.

ORANGES.

The capabilities of Jamaica to ship large quantities of delicious oranges is a most striking proof of the vast resources of the island. Hardly any orange trees have as yet been systematically cultivated here. Yet there are several millions existing over the island in a semi-naturalised condition. From these trees the export of fruit in 1886-87 was of the value of £58,288. Last year owing to the falling off of supplies from Florida there was a keen demand for Jamaica oranges in the United States. Jamaica was fully able to meet this sndden demand and it shipped oranges of the large value of £169,293. I am glad to find that steps are now being taken to cultivate oranges in a thoroughly systematic manner and that budding and grafting is being regularly pursued.

GRAPE FRUIT.

Amongst citrous fruits there is no fruit which appears to be in greater demand and obtains such high prices as the grapefruit. This is a variety of the shaddock or pumelow. It is so called because it grows in clusters as in a bunch of grape. On account of its tonic properties it has lately come into great request in the American market. The most esteemed sort is of good size, with a pale yellow, polished rind. Grape fruit should be allowed to get thoroughly full on the tree. Immature fruits are of an inferior flavour. The season appears to be from December to April. The tree when budded is a vigorous grower and very prolific. It is recommended to bud on either the sour orange or rough lemon stock. If the soil is deep use the sour orange stock. If shallow and rocky use the rough lemon stock. Provided the fruit is full juiced and of a delicate flavour the larger sizes are more in favour than the smaller ones.

PINE APPLES.

There appears to be an increasing demand for pine-apples just now in New York owing to the falling away of exports from Cuba. The best season is during the months of March to May. There is no fruit that gives a better return for the extra care bestowed upon it especially in grading and packing.

TREE TOMATOES OR PLUMS.

I find that these are not appreciated in America. Their use in Jamaica has been always regarded as beneficial as a liver tonic. There is no doubt of their wholesomeness. They evidently require to be tried

on new lines and used for such purely dietetic purposes as those which have given such special value to the grape fruit. The tree tomato is sometimes to be fouud in the Covent Garden market where it is received from Madeira. It is generally known in England as the granadilla; but it is not a passive fruit. It is more closely allied to the tomato. Any man who buys a tree tomato and expects to find a hard stone in it is disappointed. I think it is a pity to call it a plum—a gooseberry is a better name for it—for it is a berry and in no case or condition is it a plum. But whether a plum or a berry I am afraid its qualities are not appreciated in America. I am afraid Jamaicans do not approach the American in the right way. The right way to approach him is on the diatetic side. In the island where the largest stock of it exists at least where it originated he might say (although it came originally from Peru), there is no place where it grows so freely as in Jamaica and it is a great pity something more is not done with the fruit.

POTATOES.

In my lecture, already referred to, I recommend that an attempt should be made to grow new potatoes for the New York market. Such potatoes are a luxury in nothern countries during the winter months. Hence they obtain comparatively good prices. So far, experiments have been on a small scale. I find, however, that an attempt made last year, although seriously affected by the drought was not of an unpromising character. It might be suggested to make three plantings in the season, say about November 1st, November 15th aud December 1st. The crop should be ready for shipment from January 15th to March 15th, thus covering the best shipping season. It is essential that the seed potatoes should be specially selected for planting purposes. In the Bahamas for early planting rather small uncut seed potatoes are used. Later ou larger seed potatoes are cut to two eyes to a piece. These are said to give a larger and better return. The tubers should be gathered when fully developed and packed in stout wooden cases. No wrapping is necessary. With potatoes as everything else they should be presented in as fresh and attractive a way as possible

GINGER.

Of the small industries of Jamaica there is hardly one more worthy of attention just now than ginger. During the whole time I was in Jamaica I regarded ginger as my personal enemy. I understood that the culture of it is detrimental to lands in the interior. But I have had most gratifying uews from His Excellency the President of that Society that by means of suitable manures the land had been saved. There has beeu a considerable rise in prices of late years. For instance during the last 10 years what is commercially known as common Jamaica ginger has risen from 51s to 74s. per cwt. whilst good qualities have risen from 62s to 98s 6d per cwt. Hitherto ginger has been regarded as a most exhausting crop, requiring fresh forest land to be cleared every year.

LOWLANDS AND HIGHLANDS.

I think that the sooner we can turn the attention of the provision cultivator from the high lands to the interior—the low lands—the sooner the better for the interests of the island. On Saturday afternoon I went up in the direction of Blue Mountain Peak and fortunately it was a beautiful clear day and one on which a fine survey of the island was obtainable. From what I saw I was perfectly satisfied that forest land was still being cleared at high levels for provision grounds and that this land is practically being ruined from year to year. The only way to prevent this is to give the peasant proprietor the means of the knowledge to turn these abundant lands in the island to some good account—to divert his energy from destroying the various lands and devoting them to the cultivation of the lands in the low lands. I may tell you this—that the low lands in Jamaica are far richer than the best forest lands in other countries. I am afraid we have been spoiled by having so many advantages in Jamaica. As I said before I came to this meeting "all the logwood in the island came to you by the hand of nature; all the pimento crops have been a present from nature's lap." All the orange crops which last year reached the total value of £490,000 all these oranges were sown for you by the birds. They came to your pastures in spite of you, and you reaped the handsome return. It is impossible that an island like this is going back or that it can be depressed, if the people of the island will only muster their strength and energy, and put their ability forward to raising crops suitable to the island and suitable for the markets that are around us.

TOBACCO.

This is a very interesting Jamaica industry. Its development has not been free from vicissitudes; but where the cultivation is in the hands of experienced Cubans the quality of the produce is of high order. At one time there was a considerable trade in tobacco and cigars with the United Kingdom. That fell off for some time, but latterly it has again improved. It would be a very fortunate circumstance for the island if the large number of tobacco cultivators now driven out of Cuba were induced to settle in Jamaica. There are extensive tracts of land suited to the cultivation and the industry might in a few years assume large proportions. It is a singular fact that only the Spanish speaking people have become successful tobacco growers in the West India Islands. Europeans who have attempted to start tobacco growing have almost invariably failed. Jamaica cigars are now in great demand in neighbouring countries and they are pronounced to be as good as the Havana cigars.

FIBRES.

Now that the cultivation of Sisal hemp has been so largely taken up in the Bahamas and Turks Island it is probable that they will be able to supply fibre necessary to supplement that produced in Yucatan. Jamaica has so many other and more promising industries that I can hardly recommend it now to take up that of growing white rope fibres The only fibre industry that is at all suitable to the present circumstances of Jamaica is that knowu as China Grass or Ramie.

The plants yielding these fibres are allied to the common nettle but without stinging hair. Numerous straight shoots grow up to a height of 4 to 6 ft. The inner bark of these shoots contains a fibre which is pre-eminent for strength, fineness and lustre. It is necessary first of all to strip the bark from the stems and produce dry strips which are known in commerce as "ribbons." In the second place it is necessary to treat these ribbons by means of chemicals and extract the fibre in the form of white soft threads known as "filasse." The chemical part of the preparation has apparently been successfully worked out. The chief difficulty now is with stripping the bark from the green stems. Numerous machines have been put forward for this purpose but, as far as I am aware, and I have seen and carefully tested nearly all those brought out during the last 20 years, not one can be said to have been completely successful. The fibre that is now used in commerce has been cleaned by hand in China. It is regularly woven into beautiful fabrics resembling the finest damask. If once the mechanical difficulty of separating the ribbons from the stem was solved, a China grass or ramie industry might be very successfully started in certain parts of Jamaica especially those with a rich soil and an abundant rainfall. It would be useless to attempt to grow these plants elsewhere except under irrigation and I am doubtful whether they would do so well under the latter system. I am sorry I am unable to give a more favourable account about ramie. Two machines have come out in the West Indies this winter—one has gone to Trinidad and the other to Jamaica. I don't know what reasons there are for the non-success of these machines, but so far I have not been able to hear a satisfactory account of either of them. I saw the one at work in Trinidad and the result was not satisfactory. I don't know whether the machines

in Jamaica will prove more promisiug than that but all that I can tell you is that at the present time I think I shall be doing you a favour by advising you not to embark in a ramie or China grass industry until you are satisfied that this mechanical difficulty in regard to stripping the bark from the stem has been overcome (hear, hear.) It is quite possible that this difficulty will be overcome because I was very pleased last winter in the Bahamas to see a thoroughly perfect machine work for more than two hours, cleaning and extracting the fibre from the sisal leaves. This machine was very simply constructed. The leaves were fed into the machine by a boy and the fibre was taken out at the other end by a woman—these were the only persons connected with the machine at all, except of course, the man driving the engine. The leaves were all fed in sideways—leaves that were four, five, six or seven feet long were put on the feeding table and a small boy pushed them into the machine at the rate of 40 to 60 leaves a minute. A large wheel was working across the machine that cleansed this end of the leaf. There was a large clamp that held the part that had been cleaned while the remaining portion was presented to a wheel working in that direction: the fibre was delivered at the end of the machine perfectly clean. I sat by that machine for two hours and it worked like clock work. That was a Todd machine, but there is another machine which turned out at the rate of half a ton per day. The difficulty has been entirely overcome as regards extracting fibre from sisal hemp.

AGRICULTURAL TEACHING.

Most of the industries which I have reviewed this evening require for their successful issue a certain amount of skilled knowledge amongst the cultivators. A man that can simply hoe canes or weed coffee is of little or no use in the cultivation of delicate fruits. Jamaica will never be able to successfully compete with other countries until it has educated its people in right methods of growing, pruning and manuring plants and in preparing the produce in an attractive manner for export purposes. The work of training agriculturists must be beyond theoretically at least in the elementary schools of the country. Already something is being done in this direction by the Board of Education and two 'Jamaica Readers' the use of which will be compulsory in all schools. These Readers consist of lessons on plant life and treatment of common objects of cultivation thoroughout the island. I had an opportunity of reading the proofs of these interesting little books and feel sure they will be of invaluable service in familarising the children with the proper mode of cultivating crops suitable to the island and in preparing them later on to take up the systematic study of agriculture as a science. They will be read by adults as well as by the children. As long ago as 1887 Mr. Craig was instrumental in the Legislative Council in obtaining a valuable text book of tropical agriculture from the pen of my friend Dr. Nicholls of Dominica. This work has greatly assisted in the teaching of agriculture in colleges and schools not only in Jamaica but in other parts of the West Indies. Steady pursuit with such varions agencies as these cannot fail eventually to raise the character of practical agriculture in the island and render the people more capable than at present in responding to the requirements of the markets of the world.

IRRIGATION.

This is a snbject that has already been touched upon in the remarks I have already addressed to you. The great success which, at last, has attended the utilization of the Rio Cobre irrigation Canal and the enormous quantities of fruit which have been grown there will tend to bring up the practicability of extending irrigation to other parts of the country with a comparatively scanty rainfall. In the district of Vere it is believed that extensive areas could thus be maintained under cane cultivation and produce excellent results.

DEPENDENCE ON GOVERNMENT.

I think there's too much dependence in the West Indian Islands on Government (applause.) I think in a community like this in Jamaica we ought to try—I identify myself with you—we ought to try to do more ourselves and not depend on Government.

COCONUT OILS, ETC.

CEYLON.—The market is firmer in all positions. Early in the week the available stock at dock was closed out at 5c., about 50 tons being taken at this. Also 150 tons for June-August sail shipment from the Coast at 4·72½c., further business being declined under 4¾c. For vessels on way 5c. is lowest, with offers of 4⅞c. being turned down for 100 tons. The market closes strong at 5 @ 5⅛c. for spot, as to size of package.—*Oil Paint and Drug Reporter.*

BORNEO TOBACCO.

We have seen some of the Lukutan tobacco off the New London Borneo Tobacco Company's estate on the west coast of Borneo, and find that it burns well, though with not quite so white an ash as the best Borneo. It is pleasant s flavour and the new experiment in that district n certainly a success—*L. and C. Express.*

PRODUCE AND PLANTING.

THE TEA DUTY.—The reduction or abolition of the tea duty came up for discussion in the House of Commons on Monday, and led to an animated debate. The Chancellor of the Exchequer in a somewhat lame apology for leaving the duty as it is, twitted Mr. Kearley with having his own particular commercial interests in mind when complaining of the warehouse duty, but it seems to us that if the Chancellor of the Exchequer had simply stuck to his point that he would not afford to reduce or abolish the duty on tea, it would have been more to the purpose. It is quite unnecessary to infer that those who wish for a change in the present impost on a product which is now mainly supplied by British enterprise in India and Ceylon are seeking to serve their own interests because they happen to be connected with the tea trade. The desire for the abolition of the tea duty is not by any means advocated by all members of the trade, although we do not see why it should not be. The removal of the duty would be welcome to consumers of tea, and we cannot see the force of reasoning which admits that a popular article of food supply should be taxed to a certain extent, but no more nor no less. That there is a divergence of opinion amongst members of the tea trade on the duty question is undoubtedly a fact, and if those who are in favour of the present or any duty on tea were simply representative of the bonded warehouse interest there would be reason and method in the argument. But the contention that no change is necessary because the duty on tea is sufficiently low already and the article itself cheap enough, ignores the requirements of the poorer consumer altogether. It fails also to grasp the fact that, to say nothing of the advantage to the trade of freedom from the trouble now attending the bonding process, the abolition of the duty could not fail to give an impetus to the tea trade which, unless the laws of cause and effect and supply and demand are upset in this particular instance, would certainly prove beneficial to the Indian and Ceylon tea industries.

TRADE SUPPORTERS OF THE TEA DUTY.—It appears from what transpired at the quarterly meeting of the General Purposes Committee of the Federation of Grocers's Association last week that some porminent members of the trade are opposed to

reduction. One member went so far as to advocate the sending of a resolution by the committee urging Sir M. Hicks-Beach not to entertain the suggestion, as the duty was already sufficiently low. We have consistently advocated abolition or reduction of the duty in the interests of planters and the public. Apparently the *Grocer* is in favor of a similar policy, although it does not make itself clear on the subject. Commenting on the question of consumption it remarks: "Considering what the Imperl revenue takes out of tea, it is surprising that the public gets such good value in this article. Still we think it is wise to be slightly more extravagant in devotion to the teapot. One can't get much good out of it if little good is put into it; and no domestic idol better repays generous treatment. It forms a pleasant picture on the hearth as the shades of evening close in; even if replenished at the smallest pecuniary cost, it fills the cups that cheer and do not inebriate. Most of the gossip of the English race is stimulated by the teapot. What, indeed, would our dear ones of the feminine type be without it? A false spirit of economy should not, therefore be permitted to sully this noble cult, and grocers will do well to place the matter before their customers in its true light. The teapot is one of our cherished institutions. Let us put nothing into it likely to weaken its hold upon our heart or to induce an alternative taste for beer."

Tea Blending.—The prominence given to the tea blending question is making itself felt, not only by the emphasis given to its importance in the advertisements of dealers, but in the issue of pamphlets on the subject. In one of these the author points out that "the tea that satisfies London is not to the taste of the Midlands, which, again, may differ considerably from that in the north of England, Scotland, or Ireland. . . . It is the knowledge of this diversity of tastes which leads me to think that the individual grocer is throwing away a great advantage by pushing the sale of proprietary teas, or even of blended teas supplied to him in bulk. I venture to say that with comparatively little trouble he may blend teas better suited to the requirements of his connection than anything he can buy ready blended, securing at the same time an additional profit. . . . For an active business man doing a fair trade to be content to hand packets of tea over his counter, in the same way that he dispenses Bovril or Mellin's Food, is a suicidal policy which means not only less profit, but often smaller sales," inasmuch as a chemist or a confectioner is capable of distributing packet teas. The author strongly urges the necessity of testing the teas in the water of the district in which they will be used, and gives numerous useful hints as to the preparation of blends. Many wholesale firms test their teas in the water of the districts for which they are intended, and some retailers blend their own teas, and study the effect.

The Ceylon "Creeper."—The Ceylon "creeper" has achieved fame. He is the subject of innumerable newspaper articles. The *Globe* devoted more than a column to him in a recent issue, and, on the strength of this and other newspaper comments, the supply of "creepers" from these shores will no doubt increase merrily. The writer of the *Globe* article, who describes himself as a "Ceylon Tea Planter," lets the "creeper" down very gently. He describes his duties and gives him advice, but he does not emphatically say that there is no room for these young gentlemen. That is the point. The business is overdone, and for the present, unless under exceptional circumstances, there is no demand for young men on tea gardens, although possibly the offer of a considerable premium may have some effect in certain quarters. Doubtless young men with capital are welcome anywhere. They may always acquire experience in return for it, but those who are simply on the look out for something to do, and have no other qualification, will not find any special opening in Ceylon or India.

Planting in Lagos.—Sir Gilbert Parker read a paper at the Colonial Institute on Tuesday last on the Colony of Lagos. Referring to planting prospects he said: Lagos was destined to become an important coffee and cocoa growing centre. Two plantations had already been established, one at Soto in the Ilaro district, and another at Ajilite, both of which promised well. If attention were paid to fibre-producing plants, success would follow. The wild pine grew in great abundance in many parts of Yoruba, notably in the Idanre region, a chain of mountains which he discovered near Ondo in 1892, and visited in 1894. This fibre was used for making twine in some parts of West Africa, and was very strong. Other fibre-yielding plants, such as Sansiviera and Piassava, could also be had in large quantities. Cotton and a species of indigo were extensively grown in Yoruba, and although the indigo did not appear to be suitable for the English market, it was probably because the correct mode of preparation was not understood. The forests abounded in excellent timber, and an important industry must surely develop in thar direction so soon as the railway offered facilities for bringing it to a port of shipment. The hinterland of Lagos possessed the advantage of having a large and industrious population, and now that the country was pacified its productive powers must enormously increase.—*H. & C. Mail*, May 14.

SCOTCH CEYLON TEA COMPANY.

ANNUAL MEETING.

The eighth annual ordinary meeting of the Scottish Ceylon Tea Company, Limited, was held on Thursday, May 13th at the offices, 16, Philpot-lane, E.C., Mr. H. L. Forbes (managing director) presiding, there being present Messrs. R. W. Forbes, G. G. Anderson, D. Andrews, E. W. Dodd, G. W. Paine, Capt. Grant, Messrs. J. C. Sanderson, J. M. Smith, G. Todd, Hugh Blacklaw, and J. F. Anderson (Messrs. Lyall, Anderson & Co.)

The Chairman said: Before proceeding with the business the directors wish to express their deep regret at the recent death of Mr. John Anderson. He was an original member of this company, and was at the head of the firm which at one time acted as our secretaries. He was a very near relation of some who are present, and a great friend of many of us, and took a very great interest in the company. I am sure you will all join with the board in passing a vote of deep deep sympathy with his relations in the loss which they have sustained, and in requesting the secretaries to convey it to those whom he has left behind.

The motion was unanimously agreed to.

Mr. James F. Anderson (Lyall, Anderson & Co.) read the notice convening the meeting.

The Chairman said: I think the report is one of the most pleasing I have had the pleasure to lay before you, most pleasing because, during the past year several matters have caused sundry difficulties in Ceylon. Labour was not too plentiful, and during the latter part of the year the exchange was rather against us, while the tea prices were not quite so favourable as they had previously been; but, taking it all round, I think you will agree that the results we present are remarkably satisfactory. You will note that we carried forward from last year £825 13s. 9d. Our net profits for the year have been £8976 15s. 6d., which leaves to be disposed of a sum of £9,829 9s. 3d. In September last we paid you an interim dividend of 5 per cent., free of income-tax, which absorbed £2,050. The seven per cent. preference dividend has been paid as usual, and it is now proposed to pay a dividend of 10 per cent., free of income-tax, which makes 15 per cent. for the year. We further propose to add £1,000 to the reserve fund, bringing it up to £7,000 and to write off for depreciation on buildings and machinery £797 2s., which leaves a balance to carry forward of £1,252 7s. 3d. The buildings and machinery on the estates are in very good order indeed but your directors

still think it advisable to write 10 per cent. off their value as taken on December 31 last. The total amount of the crop secured for the year was 720,200 lb., being 48,200 lb. over the estimate made this time last year and 52151 lb. more than the previous year's outturn. I think you must consider that remarkably satisfactory. I may mention, too, that the present manager (Mr. Kerr) and the gentleman who did his work last year both consider that they have not yet arrived at the total crop that may be expected. There are still 163 acres on one estate which are merely in partial bearing. As regards yield, we secured 422 lb. per acre, as against 433 lb. in 1895. The reason of that is very obvious, because the 163 acres in partial bearing have all been included in striking the average. The average price of the tea sold in London was 8·86d. per pound, and the average of all Ceylon teas was 8·25d., or, taking our average at 8¾d. and the Ceylon average at 8¼d., we are a halfpenny beyond the average. The 8¾d. is slightly lower than that of last year, but there is only a fractional difference. The acreage of the estates remains practically the same. Thirteen acres were planted during the year, making 1,720 acres under cultivation. On the last occasion we had the pleasure of meeting you, Mr. Kerr (our Ceylon manager) was present. He left us, and resumed charge of the estates from February 1. During his absence Mr. G. M. Ballardie did his work, and did it as well as he did on a previous occasion, and I shall ask you to pass a vote of thanks to him in due course. I shall also have the pleasure of introducing to you my old friend Mr. Blacklaw—we have generally something on show here—an Oriental pearl from the East. (Laughter.) He has come home after a residence of twenty-one years in Ceylon without a break. I think he is a very good specimen of what the Ceylon men are. I myself retire from the board, but, being eligible, am open to re-election. The shareholders will also be invited to express their approval of the appointment of Mr. George Gray Anderson to a seat on this board. Mr. Laurie offers himself for re-election as auditor. That is the sum total of our report, which I think you will consider a very pleasing one. Our position is remarkably sound. The estimates for the present year have all come home, drawn up in the usual careful way by our Ceylon manager. The prospects are equally as good as those of last year. We have already arrived at the middle of May, so we know pretty well what to expect. The position as a whole has not deteriorated since last May. The only black spot is the labour question. It is a small cloud on the horizon, but I do not think it is likely to burst into much rain or do much harm. A good deal is being done to try and find a remedy, and I am glad to say that the Governor has taken up the matter, which no previous Governor has done, and I think, if we look to him and the planters' own energy and the Planters' Association, if matters do get worse we shall find a remedy for them. At the same time there is a bright lining to that cloud. If the tea bushes are not pulled about too much they last all the longer, and will yield dividends in the future. I always like to look at the bright side, even of a dark cloud. These are all the remarks I wish to make, and I have now the pleasure to propose the usual resolution: "That the reports and accounts be adopted"; but before putting it I should like to hear anything that any shareholder has to say, or any questions that it may be desired to put.

Mr. R. W. Forbes seconded the motion.

Captain Grant said the interest account was this year on the creditor side, but last year it was on the debtor side.

The Chairman said three months interest had to be paid on tea sales, and it was usually on the debtor side; but this year the Company had the advantage of having it on the other side.

Captain Grant said he had noticed that the receipts in Ceylon in respect of tea manufactured were going down every year. He supposed that was in consequence of the small gardens getting their own machinery.

The Chairman said the Company had been in the habit of buying large quantities of tea-leaf from estates which had no factory of their own; but many of those had now their own factories. He, himself, had not been in favour of purchasing the leaf to make for others. He did not think it was always a desirable speculation, because their employés had to give up their time to other people, and their own teas might not receive the same attention that they otherwise would.

Captain Grant asked whether it was more profitable to sell their own manufactured tea in Ceylon or in London.

The Chairman said that was a very difficult question to decide. Some teas are better sold in Ceylon; others are better brought to London. On the whole he thought the most favourable market was London.

Captain Grant said there was the question of plague. It might touch Ceylon on its return journey to Hongkong, and it might be necessary to burn the coolies' clothes, and furniture. Would they be amenable to reason and see that it was for their own benefit?

The Chairman.—We should do that first and then have a settlement afterwards. (Laughter). Every possible precaution is being taken in Ceylon to keep the plague out of the island, and in all matters affecting it the Ceylon authorities are most particular.

The resolution for the adoption of the report and accounts was then agreed to, and "that a dividend at the rate of 10 per cent, free of income-tax, be paid on and after this date."

Mr. Donald Andrew moved and Mr. R. W. Forbes seconded the re-election of Mr. H. L. Forbes as a director, and it was unanimously agreed to.

On the motion of the Chairman, seconded by Mr. R. W. Forbes the election of Mr. G. G. Anderson as a director was also carried, the former remarking that they had gained somehow the idea that that gentleman's presence on the board would increase the dividend. (Laughter).

Mr. G. G. Anderson returned thanks.

The Auditor (Mr. J. B. Laurie) was reappointed, on the motion of Mr. G. W. Haine seconded by Captain Grant.

The Chairman proposed a vote of thanks to the Ceylon and London staffs. All the heads of estates in Ceylon were practically the same as when the Company started in 1889. Both staffs had the interests of the Company at heart, and did their work well and thoroughly.

Mr. G. W. Dodds seconded the motion, which was agreed to.

Mr. Hugh Blacklaw, in acknowledging the vote, said if those in Ceylon got on successfully with their work it was due to a great extent to the board of directors at home. They had a practical man at the head of affairs, who was of great assistance to the staff in Ceylon.

Mr. James F. Anderson returned thanks on behalf of the London staff.

On the motion of Mr. J. C. Sanderson, seconded by Mr. George Todd, a vote of thanks was passed to the Chairman and Directors, and the proceedings terminated.

OIL-SEED CULTURE IN UGANDA.—A report just published by the Foreign Office states that the cultivation of sunflower, ground-nut, castor-oil, and sesame plants has been thoroughly tried and proved successful in Uganda, British Eastern Africa. At Kampala an oil-press to be worked by animal power is in course of construction, and by this oil will be produced on a larger scale than has hitherto been possible. It is hoped that the oils may find a market as lubricants, but the local demand is also increasing rapidly.—*Chemist and Druggist*, April 17.

SALT AND AGRICULTURE IN CEYLON.

The manufacture and supply of salt to the public of Ceylon is a monopoly of the Government. Here, as in India, the difficulty of reaching the masses by any other form of direct taxation has been always the apology for a levy on an article so indispensable to human existence and to healthy, active life. To tax salt though has very frequently been realised as at best a painful necessity, and when one thinks of the possibilities of "free salt" both among the people and the soil, a longing to see the necessity removed, can with difficulty, be repressed. In the case of Ceylon, however. it has been pointed out that with the natural formation, or artificial manufacture of salt, confined to two points so remote from the chief centres of population, as are Puttalam and Hambantota, it is questionable whether, had we free salt and private enterprise, distribution could be more readily or economically effected than at present by Government which charges the monopoly price uniformly and is responsible for the local supplies. This may have been true in pre-railway days; but we entirely deny the force of the argument at the present time and still more when Puttalam is brought into direct railway communication with the capital and highlands. All this by way of introduction; but before we leave the subject, we would wish to add that any attempt to increase the salt-tax in Ceylon ought to be strictly resisted. Such an attempt was threatened if not made by Sir Arthur Havelock in 1892; and we think a protest we sent to Lord Ripon (then Secretary of State) from Port Said when on our way back to the island, helped to suppress such proposal.

Be that as it may, our topic of discussion today is one that is by no means unfamiliar to our older readers, although it has not been revived for some years now. The value of salt in several, if not all, branches of agriculture in Ceylon has long been recognised. To coconut and other palm and fruit-tree cultivation salt is of pre-eminent value. The coconut flourishes along the seashore in, apparently, very poor sandy soil chiefly owing to saline mixtures and deposits; and how greatly the trees could be assisted farther inland if salt were available for application, is realized by all planters. There are certain soils which could not fail to be benefited by salt applications, no matter what crop they carry; and in this way coffee planters of a bygone generation as well as rice cultivators, were very eager to have the Ceylon Government allow salt to be denaturalised, so that it could be had free of the monopoly tax to benefit agriculture. This the Government was by no means unwilling to allow, provided sufficient assurance could be obtained that the process of denaturalisation was so effectual as to prevent the salt being used for human food. A great many experiments extending over not a few years were made, but always with such unsatisfactory results that the Government had to refuse its sanction to the agricultural appropriation of salt. The question excited considerable attention throughout the administrations of Sir Henry Ward and Sir Charles MacCarthy and part of that of Sir Hercules Robinson and has been revived, at intervals since, but always without success. Nevertheless, the importance of the proposal to utilize salt in the chief industries of the island has, in no way, abated.

During his recent visit to Europe, the Hon. P. Coomaraswamy met an intelligent German who, manifesting an interest in Ceylon. after a time got on our salt monopoly. He showed that the Government monopoly was quite as strict in Germany: but that the problem of denaturalization has been successfully solved, so that salt free of tax was permitted to be used for agricultural and manuring purposes. Mr. Coomaraswamy as a coconut estate proprietor was naturally interested, and in answer to a request for further information, a letter, of which the following is a translation, was received:—

Berlin W., Feb. 22nd, 1897.

The Hon. P. Coomaraswamy, London.

Dear Sir,—According to your wish I append an abstract of the German law *re* inland revenue on salt, dated the 12th December 1867:—§ 2. The inland revenue on salt is 6 marks for 50 kgr. (about 6s. a hundred-weight), §20. Free of tax are the following:—

No. 2. The salt used for agricultural purposes, *i.e.*, for the feeding of cattle and for manuring.

No. 3. For pickling herrings and similar fish.

No. 4. The salt employed for all other industrial purposes with the exception of that for industries preparing nourishment and relish for men (vide No. 3 exception).

The salt for purposes (vide No. 2 and No. 4) must be denaturalized (article 5 of the agreement of 8th May, 1897.) This shall be accomplished by means of pulverised wormwood (enactment of the 25 March 1878.) I shall be glad to give you any more information, if wanted, and remain, dear sir, yours faithfully,

Fr. Lange.

We have asked Mr. Lange kindly to send us copy of the enactments referred to, so as to expedite the action which we have no doubt the Tamil representative will take in the Legislative Council to have the same privileges as exist in Germany extended to Ceylon. It is a matter in which both the Chamber of Commerce and the Planters' Association should take a special interest, and we trust the year 1897—notable in so many other ways—may see the long-desired permission given to Ceylon planters and agriculturists of all grades to use salt (certificated to be treated in the proper way) for application to their palm, fruit, rice or other cultivation.

CACAO DISEASE—THE GOVERNMENT—AND THE PLANTERS' ASSOCIATION.

The correspondence given elsewhere from the Planters' Association is, so far, satisfactory. It is reassuring to know that the Kew authorities have been consulted; but still more so to understand that they will not act hastily in sending out any specialist until after Mr. Willis, the Director of our Gardens, has reported after consultation with Mr. E. E. Green. We are especially pleased that the qualifications and local experience of the latter as Entomologist are being so fully recognized, and we trust the Government will not hesitate to adopt the recommendation of the Planters' Association Committee, and indeed to act even more liberally than is suggested. Mr. Green is the last man in the world to presume or aggrandize: like so many true scientists he takes too modest a view of his acquirements and, in his case, of his ability to help his brother planters. Now, none of us should expect Mr. Willis or Mr. Green to work wonders; but we feel confident that both these gentlemen will enter *con amore* on the task allotted to them and will give the best advice in their power to the Government. Of course, Mr. Willis is the responsible adviser;

but he has already shown in his Annual Report, how ready he is to profit by local experience and special training; and still more, how pleased he would be to see further scientific experts brought to bear on the economic problems affecting the leading agricultural industries of the island. As we have said, an Agricultural Science Board—comprising the Director, Conservator of Forests, an Agricultural Chemist, Entomologist, and perhaps, Cryptogamist or Fungologist—to experiment, investigate and suggest, for the benefit of planters of all degrees (of palms as well as of tea, cacao, coffee, etc.,) and of cultivators generally, could not fail to prove of decided benefit at this stage in the progress of the colony; and if Governor Ridgeway saw his way to establish such a Board, and to place it in active co-operation with agricultural, as well as official, representatives, a very notable advantage would be given to our greatest and most vital industries, and a decided impetus to material progress in a variety of directions.

CATERPILLAR PEST ON "ALBIZZIA" (TOON) TREES AND WITH A LIKING FOR TEA.

The following is the letter of a tea planter in a lowcountry district to a Colombo merchant:—

I am sending you, in a small box, some tea leaves with the "caddis" and worm attached. As the pest now has got on to the tea after having nearly killed about 5 acres of Albizzias, I shall be much obliged if you will please show them to the *Observer* Entomological authority; and if he thinks it will be necessary to destroy them then the matter must be taken in hand at once. All the Albizzia trees with pest have to be cut down—as the worm drops on to the tea from them—and then coolies are put on to collect the worms. So far very little damage has been done to the tea bushes.

Our Entomological referee is good enough to report as follows:—

"Caterpillars of the genus *Psyche*. They reside in a case composed of fragments of leaves, bits of grass, &c, and in which they undergo their metamorphoses. Those cases suspended from the leaves by a thread, contain the chrysalides which might be brushed off by the hand if very numerous and close together. The escape of the moth is indicated by a portion of the empty chrysalis left protruding from one end of the case, within which the caterpillar has resided, and the chrysalis found protection. I have not heard of their doing much damage to tea. Colombo 7th June."

All this shows how much need there is for an Entomologist—not merely "honorary"—though that is better than none—but for one in constant work throughout the country. Possibly, the five acres of "toons" might have been saved if seen by an Entomologist at an early stage.

THE VINE IN THE MALAY PENINSULA.

Alluding to a recommendation in an Indian paper that planters in the Malay Peninsula should try the vine, the *Malay Mail* says:—

We are of the same opinion, and wonder why nobody has ever yet thought of going in for viticulture here. The chief question is, of course, one of soil. As for the climate, we should think little on that point is left to be desired. The sunlight is on the whole never too scorching, and the rains, provided always that the vines were not planted along too steep a gradient, would invigorate the leaf, and also tend to protect it against parasites. Of course, wherever tin were suspected as being present, there wine growers must be conspicuous by their absence. As to the ferruginous flavour of Australian vintages, which is not always palatable to wine drinkers, no fear need be entertained on that score, for ironstone soil is not much met with in the F. M. S.—*S. F. Press*, 28.

CEYLON PROPRIETARY TEA ESTATES COMPANY, LIMITED.

The statutory meeting of the Ceylon Proprietary Tea Estates Company, Limited, held at the offices of the company, 20 Eastcheap, on May 18.

The Secretary having read the notice, calling the meeting,

The Chairman Mr. G. A. Talbot, said:—

This being the statutory meeting of the company which the Act demands must be held within four months of the incorporation of the company, I need not remind you it is a meeting at which no business can be done. I, however, may tell you that the various estates have been transferred to the company, and we are now in full possession of the same. When the prospectus was issued we had not been able to conclude negotiations for the purchase of the remaining one-eight share of Radella Estate, but we have now done so, and there are only certain legal formalities to be gone through when this eighth share will be conveyed to the company. We have telegraphic advice that the crop for the first four months of the year has amounted to 290,000 lb. so that it would appear we are likely to fulfil our expectations as regards the estimated crop from our property when in full bearing, as set forth in the prospectus. As you are aware the first four months of this year have been unfavourable as regards exchange rates, but these are now improving, and we can only hope they may continue to do so. While in Ceylon in March last I visited Radella and Summerville Estates belonging to the company, and was thus able to confer with Mr. Wiggin, and Mr. Masefield, and advise them as to the future working of them. Mr. Wiggin, who was one of the principal vendors, and who is on the board of the company, is at present in Ceylon, and as he has a thorough knowledge of estate management will meet Mr Masefield, who will have the care of the estates for the future, and arrange with him as to the working before he returns to this country about the end of the year. Should any shareholder desire to ask any question, I shall be very pleased to answer the same.

No questions being asked, Mr. W. R. Mitchell proposed, and Mr. G. T. White seconded, a vote of thanks to the chair, and the proceedings then terminated.—*H. & C. Mail*, May 21.

MULBERRY AND TEA CULTIVATION IN THE FAR EAST.

We take the following from the *Japan Times* of May 11th:—

According to statistics compiled by the Agricultural and Commercial Department, the area of land devtoed to mluberry cultivation shows a tendency to increase annually as the result of the progress made in sericulture, the total area in 1896 being 288,937 *cho*. This is an increase of 22,772 *cho*, or 8·5 per cent compared with the previous year. The increase can be traced in almost every prefecture, those of Yamanashi, Yamagata, Gumma and Nagano being the most prominent examples. The total area of tea farms is 59,479 *cho*, being an increase of 1,750 *cho* or 3 per cent compared with the previous year. This is a result of the close investigations pursued in Shizuoka prefecture, on the one hand;

and of the remarkable improvement in the tea industry in Kochi and Miyazaki prefectures, on the other hand.

COMPARISON OF AREA OF MULBERRY AND TEA FARMS.

	Mulberry Land. cho.	Tea Land. cho.
1890	243,842·0	——
1891	247,968·1	——
1892	231,400·8	60,669·7
1893	243,858·8	——
1894	253,889·8	59,000·1
1895	266.164·3	57,728·6
1896	288,937·0	59,479·1

PRINCIPAL PRODUCING DISTRICTS.

Mulberry. Prefectures.	cho.	Tea. Fu and Prefectures.	cho.
Kanagawa	9,410·3	Kyoto	3,298·0
Saitama	18,803·0	Saitama	1,912·8
Gumma	28,740·5	Ibaraki	2,903·8
Ibaraki	11,617·7	Miye	4,086·0
Yamanashi	18,657·3	Shizuoka	14,597·1
Gifu	13,560·8	Gifu	2,148·4
Nagano	25,348·7	Ehime	2,324·5
Fukushima	29,422·0	Kochi	2,044·3
Yamagata	14,287·1	Fukuoka	2,053·8
Ishikawa	10,492·2	Kumamoto	2,334·8

SOUTHERN INDIA TEA ESTATES COMPANY, LIMITED.

The following is from the directors' report to be submitted at the second annual ordinary general meeting, to be held at the office of the company, 16 Philpot Lane, London, E. C., on Wednesday next:—

The accounts show a net profit of £1,193 6s 9d after payment of debenture interest. Out of this sum an interim dividend of 5 per cent. was paid on October 7, 1896, and the directors propose now to pay a dividend of 5 per cent., making a total of 10 per cent. for the year, free of income-tax. The balance of £150 0s 10d will be carried forward to the current year. Without hitherto making a call upon the shareholders, the cultivated acreage has been increased by opening 96 acres of new land, which had been planted with good Manipuri seed and makes the total now 516 acres in tea. The purchase of the adjoining estates—Glen mary and Westerton—for £14,000, as from January 1, 1897, and as put before the company at the general meeting of October 7, 1896, has been concluded by the directors, and the transfer of these properties to the company duly completed; the vendors agreeing to receive payment in 500 fully paid-up 6 per cent. Preeference shares of £10 each and 900 fully paid-up ordinary shares of £10 each. The tea growing upon Glen, mary and Westerton is of exceptionally good quality and the purchase was recommended by Mr. Robert S. Imray, whose report upon them is in the company's office, and is open to the inspection of shareholders. The profits for the last season were £1,446 4s 5d. The acquisition of Glenmary and Westerton will give a compact property in one block with a total area of 912 acres of tea, 676 acres being in bearing. As a large area of valuable land belonging to the company is at present unproductive, the directors consider it highly desirable that some of it should be quickly brought under cultivation, which, with the company's staff of management and available labour, can be cheaply and profitably accomplished; and for this purpose it will be necessary to issue this year 300 new shares —say 200 6 per cent. preference and 100 ordinary shares, which it is proposed be first offered to the shareholders pro rata at £10 10s per share. Fifty acres are already felled in Kuduwa Karnum and eighty-six in Glenmary and Westerton for the present season's planting. The accounts from the gardens are of a more satisfactory nature than they have been since the company entered into possession of the properties. Mr. William Forbes Laurie retires in accordance with the articles of association, but offers himself for re-election as a director.—*H. & C. Mail*, May 21.

UDUGAMA TEA AND TIMBER COMPANY, LIMITED.

An extraordinary general meeting of this Company was held at the Registered Office of the Company, No. 20, Baillie Street, Fort, Colombo, this afternoon for the purpose of considering and passing the following resolution:—

That the capital of the Company be increased from four hundred thousand Rupees (R400,000) to five hundred thonsand Rupees (R500,000) by the creation of 2,000 new shares of R50 each to be called "preference shares," entitling the holders thereof to a preferential cumulative dividend of eight per cent per annum, and in addition thereto in any year when the net profits of the Company after payment of debenture interest and after writing off such amount as the Directors of the Company think proper for depreciation, exceed the amonnt payable as eight per cent. dividend npon the "preference shares" that have been issued, one-third of such excess if all the 2,000 "preference shares" have been issued, or if all have not been issned, a portion of such one-third proportionate to the proportion that shall at the time have been issned of snch 2,000 shares; and fnrther entitling such preference holders, in the event of the Company being wound up, to be paid the amount of their preference shares in full before any payment is made to the ordinary Shareholders.

The original Shareholders in the Company to have priority of right to take up the preference shares *pro rata* to the number of shares held by each Shareholder.

The resolution was carried, all present voting in favour of it, with the exception of Mr. R. L. M. Brown who did not record his vote.

CEYLON TEA IN AUSTRALIA AND THE CONTINENT GENERALLY.

We are glad to welcome back Mr. Marinitsch, looking exceedingly well after his trip to Europe, and we learn that he brings good news of the progress of the sale of Ceylon tea throughout Austria. The demand for Ceylon tea is increasing, but he thinks that perhaps the demand for Indian tea is increasing in a larger proportion, and he considers that this is due to the Indian teas being better prepared. Ceylon tea, although of quite good enough quality for continental purposes, is not made so attractive as it might be, and in many parts of the continent "appearance" is the thing of greatest importance to secure a ready sale. Mr. Marinitsch thinks too that the Ceylon Tea Fund directors —and he speaks impartially never having received or asked for any contribution from this fund—would do better by advertising Ceylon teas on their own account, than by personal subsidies, which are too often expended in promoting individual businesses rather than for the welfare of Ceylon teas as a whole. We certainly consider, that the time is fast approaching when individual subsidies should be abandoned in favour of the wider and more impartial advertising of our teas.

Rearing Silkworms in the Plains.—We regret to see that the experiment which has lately been tried, of rearing silkworms in the plains from cocoons imported from Assam, has had to be abandoned. The increased heat to which they were subjected in their new habitat proved too much for the worms, which gradually sickned, and died off in the course of a couple of years.—*The Statesman.*

"HOW TO ECONOMISE THE AVAILABLE LABOUR SUPPLY."

Under this heading, we ventured, though with considerable hesitation, to trouble the planting community—some time ago—with a third Circular containing questions bearing on the all-important question of Labour Supply. Most of these were suggested by practical men for whose opinions we have the highest respect: but, nevertheless, we much feared that our "11 questions" would meet with the fate upcountry which they did from one Colombo merchant (with planting experience) who ought to be among the earliest to show a good example, instead of his reply to the Circular being,—"This is beyond me." We are much gratified, however, to find a very liberal and most interesting series of answers already sent in from some of the most thoughtful and observant planters in the country and covering a considerable variety of districts. We, of course, expect a good many more and shall delay publication accordingly for a few days. That our Circular this time was rather a formidable one will be seen from its terms as follows:—

DEAR SIR,—It has been suggested that to bring together the opinions of a number of experienced dlanters on means of economising Labour on estates qeyond the ordinary routine, might lead to some useful practical results. No doubt, there are labour-saving contrievnces on some estates, not yet generally adopted, which it would be well to make known because every cooly saved is a matter of benefit to the whole community. Hints as to wire-shoots, spouting, &c., ought to be useful. It is also suggested that questions might be asked as to alterations in some points of present cultivation, weeding, draining, &c. We accordingly formulate a few questions:—

(1.) Have you had any experience of WIRE SHOOTS, or seen their working, and do you think them applicable much more freely than at present on estates? Do they damage tea leaf?

(2.) Particulars of any other Labour-saving appliances in field or factory of which you have had experience, or have noted among you neighbours?

(3.) Could small TRAMWAYS 18-in. or 12-in. gauge be applied profitably on average estates to save transport by coolies?

WEEDING.—It is pointed out that where clean weeding had been observed with coffee on steep land, it (the coffee) has gone together with the surface soil: and that most of the coffee still in existence is growing on rocky ground where a growth of mosses and low class plants—together with the nature of the ground—has allowed of fresh accumulations of leaf mould. What is suggested is that while all seeding or strong weeds should be taken out, there are others that—taking little out of the soil—might be left to aid in the formation and retention of humus. The questions then may be formulated thus:—

(4.) Has it ever struck you that weeding (both of coffee and tea) was overdone in Ceylon?

(5.) With reference to saving Labour as well as saving soil, would you advise an experiment in less frequent weeding, or in what may be called, selected weeding—that is the leaving of mosses, selaginellas, small ferns, and other such small plants?

(6.) Have you ever tried an experiment in cultivating any crop (of lupines, clovers—N.B., not the *Oxalis*, a common and obnoxious weed like a trefoil —) to be dug into the soil,—or would you advise such an experiment?

(7.) Is the present system of DRAINAGE satisfactory? Could any practical means be devised for trapping or retaining the vast amount of soil that is annually carried away with the surface water. A favourable account has reached us of the result of planting rows of cuscus grass (which neither seeds nor spreads) above the drains—these grew close and strong, forming a barrier against soil being washed down, while allowing the rain to pass through?

(8.) Kindly mention any means in other directions in connection with the usual plantation work where Labour might be saved?

Next as to keeping Labour, would you

(9.) Suggest any special perquisites to coolies—is the giving of ground for gardens to each lines generally observed—and where not, would it not make them more contented?

(10.) Would you advise the multiplying of boutiques or bazaars—until each two or three estates have their own—in order to prevent coolies wandering a distance and being tempted?

(11.) Are you troubled with a liquorshop in your neighbourhood and do you think labour would be saved if liquorshops were abolished, or reduced in number, in the purely planting districts?

Answers, opinions, or suggestions on all or any of above heads will oblige.

We can easily understand the younger Superintendents or Managers being reluctant to enter on so wide a subject; but apart from the fact that strict anonymity is preserved, there is nothing like "giving" as well as "taking" in planting discussions, in order that the fullest benefit from diverse experience, opinions and observations may be derived. The man who contributes—be it ever so little – a suggestion, opinion or remark on even *one* or *two* out of the eleven questions—is far the most likely to take an intelligent interest in the whole discussion and also to prove himself one of the leading planters of the future—we now refer, of course, to the younger generation of the community.

Meantime we must express our thanks to the gentlemen who have taken so much trouble to give us the advantage of their experience and opinions in reference to the important topics raised in our questions, while to those who have the Circular lying by them for the "convenient moment" we would say "Try and oblige by sending in your answers as early as possible."

THE "BULKING OF TEA" ON THE ESTATE—IN COLOMBO STORES —AND IN LONDON.

The result of our enquiries goes to show that the "bulking of tea" in estate factories—where it can be done most conveniently and accurately—costs, if ordinary care is taken, such a mere fraction as to be practically *nil*; in the Colombo factory, the estimated cost is a half-cent per lb.—because boxes have to be opened and renailed, lead cut and resoldered, pieces of broken hoop replaced, etc.;—while in the London warehouses the cost runs from ⅛d to ¼d per lb. for whole or half chests. The comparison may be still further pursued by contrasting the following table given by our evening contemporary with the "half-cent" per lb. for Colombo, and the merest fraction (not worth counting) for estate bulking:—

The rates for taring and bulking in London (less ten per cent) are as follows:—

From	169 lb.	to	199 lb.	2s	0d
,,	130	,,	159 ,,	1s	8d
,,	90	,,	129 ,,	1s	5d
,,	80	,,	89 ,,	1s	3d
,,	60	,,	79 ,,	1s	2d
,,	45	,,	59 ,,	—	11d
,,	35	,,	44 ,,	—	8d
,,	17	,,	34 ,,	—	6d
Not exceeding	16 lb.		,,	—	4d

But it is not the mere money difference, so much as the treatment of our teas in the London

warehouses during the bulking process, that has to be complained of ; and the undoubted fact that foreign substances—pieces of stick, dust &c. —get into the tea while repacking, excites the great objection to London bulking on the part of proprietary planters. There is indubitable evidence of this fact afforded—evidence which even Mr. Lipton cannot get over—in the gradual accumulation of tea up to a considerable quantity in the London warehouses. Where does such tea come from ?—and what happens when a London buyer of tea finds that a chest is short weight of the quantity marked upon it ? He lays the box on one side, telephones to the warehouse naming consignment, mark of chest and weight short ; and at once a man comes up from the warehouse to see and test the case,—and as often as not with the short weight of tea in a paper package, so that he may at once close the complaint if a correct one ! Again, where does this tea come from ?—and how in the face of such an absolutely unjust and iniquitous system, Mr. Lipton's tea buyers can have the utter indifference to proprietary interests to say, "We will only buy London-bulked tea," surprises us beyond measure. Surely Mr. Lipton himself—as a Ceylon tea estates proprietor, a professed friend of the industry and of the colony—cannot have been consulted in this decision ; and surely it cannot be one that is approved of by his experienced Agent on the spot (Mr. F. Duplock)? It is, moreover, quite evident that a whole community of careful, upright, fair-dealing men—the tea planters of Ceylon—are to be punished for the sake of a few "black sheep"—careless superintendents about their factory work—amongst them ? This is neither politic nor equitable. We do not at all deny that there is a percentage—perhaps only a fraction of a per cent—of careless "estate bulking" ; but surely it is not impossible for buyers to keep a note of the offending "mark" and take care not to buy that estate's tea—at any rate after a second faulty experience—ever again ? We are the very last to defend the careless superintendent ; although, we feel that, in some cases, the proprietor may have to share the blame in not granting a sufficiency of aid in factory work ; and we know that there are cases in the experience of Colombo Agency houses which show downright neglect in the estate factory. One such case related to us, we may mention. A lot of 18 chests of tea is sent to Colombo Agents to be offered for sale : samples are drawn from three boxes ; afterwards another sample for some reason is sent for and it proves so utterly different that an examination of the whole lot takes place when it is found that 6 out of the 18 boxes contain different and greatly inferior tea, although all were reported to be "bulked" the same. Now, in such a case, unless a satisfactory explanation was afforded, prompt and decided punishment should follow.

Nevertheless we maintain that the cases where anything like careless "bulking" occurs, are very few and far between. We know estates by the score—if not hundred—where, for a series of years, there has never been the slightest complaint in reference to "bulking." Now, why should such—the vast majority of—Ceylon estates be subjected to an additional tax, and their teas be depreciated in a London warehouse, because there are a few factories which are careless about their "bulking" ? We think that, on reconsideration, even Mr. Lipton's "house" will see its mistake. Certainly, we feel sure that Mr. Lipton himself—to whom we directly appeal as a proprietor with experience of Ceylon tea estates—will see the unfairness of subjecting a whole community of planters to the disadvantages which would follow were all the tea buyers to refuse to buy save on London "bulking." We would ask Mr. Lipton's London tea managers, therefore, to rescind their obnoxious rule and, instead, to take a note of any offending Ceylon estates' marks,—avoid them in the future, and, if they like, publicly report them, especially after a second offence.

BEE CULTURE AT THE SCHOOL OF AGRICULTURE.

Arrangements are being made for carrying on an experiment in Apiculture at the School of Agriculture, and a couple of hives especially constructed to suit the habits of the Ceylon honey bee under the supervision of Mr. Charles Andree of Kurunegala, who has had considerble experience in bee-keeping in Ceylon, may be now seen at the School.

PLANTING AND PRODUCE.

Outlook for the Tea Trade in China.—A great expansion in the foreign trade of China is recorded by Mr. H. Kopsch, the Secretary of the Imperial Maritime Customs, in his report for 1896, but in tea there is again a considerable falling-off. The decline of China's trade in tea is no new feature. That has been persistently dwindling for years past under the competition of India and Ceylon. And as to its prospects, this is the best that Mr. Kopsch can say :—"That the resuscitation of the China tea trade is not regarded as hopeless is evinced by the formation of a 'Foochow Tea Improvement Company,' for the preparation of tea after the Indian and Ceylon methods." He does not regard it as improbable that in time this new departure will commend itself to the Chinese tea growers, and that although the market for China teas in the United Kingdom may never be recovered, an Asiatic demand for the finer qualities of them may slowly develop.

New Season's China Teas.—The time has come round again for the opening of another season for China teas at Kiukiang, and we may soon hear of the first steamer leaving Hankow with new Monings for the London market. This commencement of the 1897-98 season, says the *Grocer*, does not possess anything like the same amount of importance to the home trade as openings of the season did years ago, when those teas occupied a far higher place in the estimation of the dealers generally than they do now; and after the losses and disappointments more recently experienced, it would be unwise to indulge in sanguine expectations of a very successful business in the article in the near future. Compared with the popularity it enjoyed in the "seventies," when the yearly consumption in this country averaged about 122,000,000 lb, China tea has gone almost entirely out of use —in 1896 only 19,831,680 lb were officially returned as having been consumed in the United Kingdom. Theordinary consumer's liking for this kind of tea has certainly died out ; and it is only when Indian and Ceylon teas temporarily run short, and are relatively dear at 7d to 8d per lb for common quality, that the wholesale dealers, in the struggle to keep up a cheap (shilling) canister, will condescend to look at China descriptions. These then, by reason of their exceeding cheapness, become a tempting

bait to the mixers and blenders, who operate largely in them while the scarcity of other sorts lasts; and directly there is promise of a glut in Ceylon and Indian teas, and prices recede to their former reduced level, the dealers retire from the China division of the market and go back eagerly to their old favourites.

The New Move in China.—Chinese tea importers are hoping that the tea trade of China will mend on the strength of the new manufacturing methods which are to be adopted. There are some tall stories current about the coming revolution in the China tea trade, but at present these reports are mere rumour. The *Grocer* echoes this hopeful anticipation. It says:—"Yet, notwithstanding all that may be observed to the contrary, there are still some old fashioned people who like China tea, and, preferring it to any other, will have it while it is at all possible; and for this class of consumers at least the beginning of a new season is decidedly hopeful. Especially is this so at the present time, when 'machine-made' teas from China will be subjected to their severest test. Till now they have been regarded merely as an experiment, having first come under notice in November last, when we spoke of them as showing 'an improvement on the old style,' also as being both 'strong and pungent,' and seeming 'to meet with approval.' If half what one hears of these teas be true, they are likely to prove the great feature of the coming season, and should be the means of partly restoring China growths to a healthier position than they have stood in for many years past. In manipulating China teas for native use or exportation, the worn-out plan was to dry the leaves as they were plucked, first in the sun, before finally preparing them for market; but it is said the new method recommended and adopted is to avoid the preliminary process of drying the leaf in the open air, and carry the freshly gathered leaves, full of their natural sappiness and moisture, straight to the pans or sheds for 'firing,' curing, and being 'machined,' preparatory to packing them for sale and shipment to foreign markets. China teas, which have become less and less a speciality with the home trade here, may, if made stronger by the new mode of manufacturing them, compete with the productions of India and Ceylon, the latter particularly; for, besides the newly-treated teas being more suited to the modern requirements of the British public of today, they are just what are wanted by shippers to the European continent and elsewhere, who must secure teas of some richness and strength, or they will not please the drinkers of the beverage there. Weak, flat, insipid, and thin-liquoring teas are, it appears, practically out of the running; and the smaller proportion they bear to the aggregate supply the livelier will be the demand and the more satisfactory the price for all teas of a finer and superior grade."

The Profits on the Sale of Tea.—The Chancellor of the Exchequer, in his recent speech on the tea duty question, hurt the feelings of some members of the tea trade by stating that grocers made large profits out of the sale of tea. The president of the Manchester, Salford, and District Grocers' Association has written to Sir Michael Hicks-Beach as follows:—"From this morning's papers I find that in the discussion in Parliament last evening as to a proposed reduction in the duty on tea you are reported to have said that 'the fact was, there was no article in the whole stock of a grocer that paid him so well. It was an article out of which he made his profits as largely and as certainly as the innkeeper made his profits out of alcohol. The poor man would pay at the rate of 2s a pound for a small quantity of tea—tea which the wholesale dealer had bought at 9d.' As president of the Manchester, Salford, and District Grocers' Association, and a grocer having nearly forty years' experience in the retail grocery trade, I beg to offer a most emphatic protest against your remarks and an absolute repudiation of the above statement. As a matter of fact, a grocer would think he was doing well to obtain 1s 4d per lb for tea costing 9d wholesale, but he would not thereby secure 7d profit to himself. To the first cost must be added 4 per lb duty, an additional tax of ¼ per cent., cost of carriage, &c., making the cost to the grocer at least 1s 1½d per lb. I may inform you that there are hundreds of retail traders in this district who purchase tea wholesale at 1s 2d per lb to sell again in small quantities at 1d per oz., or 1s 4d per lb. It is therefore most unfair to the shopkeeper to advertise him as selling at 2s per lb. tea which costs him only 9d.—I am, on behalf of the Manchester, Salford, and District Grocers' Association, yours, &c." On this subject Mr. James Little, of Manchester, writes as follows on the subject of the grocer's self abnegation:—"I don't suppose people will take much notice of the absurd statement of the Chancellor of the Exchequer re good and respectable trades-people robbing the public, because that is really what he suggests when he says tea dealers buy tea at 9d and sell it at 2s. Why, sir, the thing is preposterous. In these days of competition I sell tons of tea at ½d per lb profit. And a grocer if he got 2d profit would consider himself doing good business.' —*H. and C. Mail*, May 21.

THE JAPAN TEA INDUSTRY.

The position which Shizuoka *ken* occupies in the tea industry of Japan may be easily gathered from the fact that out of 40,281,669 catties sent from various parts of the empire to Yokohama and Kobe in 1895, Shizuoka contributed no less than 17,274,937 catties, the amounts brought in during the same year, from other noted tea districts being as follows: Miye, 5,516,000 catties; Kyoto, 3,187,105 catties; Osaka, 1,858,959 catties; Shiga, 1,044,631 catties. Besides green tea, Shizuoka produces Oolong (Formosan) tea and black tea, the first, however, being predominant. The tea manufactured in Suruga, which province and Totomi make up Shizuoka *ken*, is collected in the local depots at Shizuoka, Fujiyeda, Numazu, Omiya, Yoshiwara, and Ejiri; while that manufactured in the other province is collected at Kanaya, Kakegawa, Futamata, Hamamatsu, and one or two other places. The leaf is next sent to Yokohama through the wholesale dealers of the respective places. In the city of Shizuoka there is the Nippon Tea Manufacturing Company, which sends goods to foreign markets without passing through the hands of foreign merchants in Japan. A special establishment for remanufacturing tea is also found in Jyoto Gun. The latest statistics on the Shizuoka tea industry are as follows:—

Area under tea cultivation..	12,744 *cho.*
Annual output ..	1,600,000 catties.
Value of output ..	4,800,000 *yen.*
Members of Tea Guild ..	74,675
Licensed instructors in tea manufacturing ..	571

The rise of wages was during the last few years quite surprising. During 1895 the average daily wage of tea-pickers did not much exceed 12 *sen*, but was raised to 17 *sen* next year for men. At present wages paid to girls and women for picking do not differ from the rate of last year, but it is extremely probable that the tendency to increase will appear sooner or later.

The ruling price of the raw leaf being very closely related to that of manufactured, it is not yet possible to give any precise statement on the subject. But it is expected that this season the growers' price will be midway between that of 1895 and 1896, that is, between 33 *sen* and 23 *sen* per *kwamme*, and will range between 27 and 30 *sen*. Wages of tea manufacturing operatives have risen even at a greater rate than in the case of leaf pickers' wages. Two or three years ago the average rate of wages was about 30 *sen*, but last year it rose to 50 *sen*. But it is not the wages alone that tea manufacturers have to pay on account of their men; they must also supply food to the men, and at an increasing cost. The rise in the market price of charcoal must also be taken into consideration, for it constitutes

one of the most important items in tea manufacture. Two or three years ago a *yen* would purchase 22 *kwamme* of charcoal, but this year the purchasing value of the *yen* fell to 16 or 17 *kwamme*. With the general rise in the timber market, the price of tea boxes is also steadily going upward, probably to as high as 40 *sen* this year as compared with 35 *yen* last year. Such being the movement in the cost of production it is not surprising that tea manufacturers and dealers are very anxious about the outlook this season. The supply of leaf will not be deficient, for though in some particular districts the damage inflicted by the late frosts has been estimated to diminish the output by about 30 per cent, as compared with the yield of an ordinary year. The crop from the whole prefecture of Shizuoka is expected to exceed that of last year by 20 per cent. From the 2nd to the 10th inst. the first picking will be most active.—*Japan Times*, May 8.

[SECOND ARTICLE.]

Tea dealers and growers of Shizuoka *ken* are fully alive to the necessity of stamping out the ruinous tendency towards deterioration in the tea trade. Consequently, last year, when the tea market was unusually dull and when, therefore, according to previous experience, inferior goods were extremely likely to appear, people wisely decided to suspend the manufacture of tea altogether for the time. Tea manufacturers of Kanaoka-mura and its neighbourhood have decided this year to give up using iron pans in the manufacture of tea, the use of such implements tending to deteriorate the quality. There are several varieties of deteriorated tea, and these are made in different ways. For the sake of clearness, we may subdivide deteriorated tea into three classes namely "Fusci-cha," "Chakushoku-cha," and "Sosei-cha." There are commonly five different ways of making Fusei-cha, and they are (1) to use leaves resembling those of the tea shrub, or to mix such leaves with real tea; (2) to sprinkle black or dark-coloured sand, or other materials, in the tea, while the process of manufacture is going on, and thus to increase the weight of it; (3) to re-manufacture tea which has gone bad, and to use it either by itself or by mixing it with tea of good quality; (4) to convert coarse leaves of other trees or shrubs into "tea" by the aid of certain sticky substances, or to mix such bogus "tea" with genuine leaf; (5) other clever methods, which, however, are not so common as those enumerated above.

"Chaku-shoku-cha" is made (1) by colouring tea (after manufacture) with antimony or plumbago, or mixing tea thus coloured with ordinary tea, (2) by using sulphate of iron or other compounds of iron during the process of manufacture, to give the tea a black appearance.

"Sosei-cha" is (1) tea dried in the sun (black tea excepted); (2) tea made of coarse leaves rotted by various processes so as to give them a black appearance. (3) Rotten tea dried in the shade.

In enumerating these different varieties of adulterated tea and deteriorated tea and explaining the different ways of making it, we do not of course mean actually to charge the tea manufacturers of Shizuoka in particular with being guilty of these fraudulent practices, for people of other places, Yokohama, for example, are known to be guilty of the same offences. We merely make this statement to inform the general public how deteriorated tea is made, and how the Shizuoka people are setting their faces against it. Another article will bring this description of the Shizuoka tea trade to a close.—*Japan Times*, May 7.

(THIRD ARTICLE.)

The Shizuoka tea growers and dealers are thoroughly desirous of keeping up the reputation which the locality enjoys as the largest centre of the tea industry in Japan. While tea growers of other districts, disappointed at the small margin of profit which the business has yielded during the last few years, are converting tea farms into Mulberry plantations, the Shizuoka men stick to the business with admirable perseverance. They have, for instance, invited from Formosa several experts in the manufacture of Oolong tea, and are trying to start a new branch of tea industry. All these efforts are most praiseworthy, but they seem to absorb the attention of the Shizuoka men too much, to the neglect of other important matters which lack the attraction of novelty. For instance, they do not seem to devote enough attention to the necessity of devising means calculated to reduce the cost of production which seriously threatens, according to the recent tendency of the market, to eat up whatever profit may be expected to accrue from the manufacture of tea. Indeed, the rate of increase of the producing cost during these few years far surpasses that of profit, as a glance at the following figures will show:—

COST OF PRODUCTION.

	1891	1895	Rate of increase.
Daily average wages of tea labourers ..	30 sen	50 sen	66 per cent.
Price of charcoal per *Kwamme*	3.6	6.0	66 ,,

PRICE OF TEA.

Average price of tea per 100 catties ..	16.61 *yen*	22.86 *yen*	37.6 per cent.

The year 1895 was one of the most favourable years to tea growers, the market having stood at an unusually high level, and yet, even taking the figures of that year, the rate of increase of profit does not exceed 29 per cent. as compared with 66 per cent. increase in the cost of production. The point deserves the most careful attention of Shizuoka people. Various schemes thus far devised by them for the purpose of reducing the cost of production are mere temporary expedients and are of no permanent use. The primary point to be kept in view is the expensiveness of manual labour, the whole process of manufacture being at present entirely undertaken by human hands. Under the circumstances, a machine which Mr. Mochizuki, of Shimo, Aibara county, Shizuoka Prefecture, "invented" last year must be recommended to the notice of those who are interested in the tea industry. A set as originally constructed costs 250 *yen*, and the machine when operated with water power is capable of doing the work of 16 men, while only two men are needed for working the machine. The inventor has since thought it necessary to effect some modifications and the cost of the later pattern is consequently raised to 800 *yen*. He is contemplating the use of the machine this season at his tea factory, and the result ought to be carefully observed by all tea growers. Another point to be impressed on the tea growers, though already very well known to them, is the necessity of bringing foreign consumers of Japan tea and tea dealers and growers of Japan into closer touch, and to dispense with the service of intermediary foreign agents. For this purpose refiring manufactories must be established in Shizuoka, instead of Yokohama and Kobe, as at present, and tea thus made to suit foreign taste must be shipped from Shimizu, instead of sending the goods to those two ports. Indeed, Japanese tea now passes through the hands of too many agents before it reaches its destination, and the point will at once be evident if comparison be made in this respect between it and Ceylon tea as follows:—

INDIAN AND CEYLON TEA.

(1) Consumers—(2) retail dealers—(3) American importers or wholesale dealers; so much with regard to the interior of America; (4) foreign exporters at Calcutta or Colombo—(5) producers; so much with regard to the interior of India; total 5.

JAPANESE TEA.

(1) Consumers—(2) retail dealers—(3) American wholesale dealers; so much with regard to America; (4) foreign exporters in Japan ports—(5) Japanese dealers at treaty ports—(6) local wholesale dealers—(7) local middle men—(8) producers; so much with regard to Japan; total 8.—*Japan Times*, May 10.

B. C. AFRICA CHAMBER OF AGRICULTURE, AND COMMERCE.

Labour and Taxes.

Owing to numerous complaints with regard to the restrictions put upon Angoni coming to work in the Shire Highlands, an extraordinary Meeting of above was held in the Mart Blantyre on 22nd March. The Meeting was open to the Public, and a large number assembled, representing every interest in B.C.A. The action of the Administration in requiring Planters and other Employors of labour to pay over to the Government the tax of 3s was strongly objected to; and exception was taken to the Collector's stipulating the wages to be paid to Angoni. After an animated discussion in which the majority of those present took part, the following resolution was unanimously agreed to:—"The Chamber having received many complaints from Planters and others regarding the scarcity of Angoni labour, and having learned that the chief hindrance lay in the manner of collecting taxes, pursued by the Government, and after evidence led, and discussion of the matter, is of opinion that":—

(1) "The time has not yet come for the levying of a tax of 3s per hut upon Angoni as levied in more properly civilized districts."

(2) "The manner in which this tax is being levied makes it a poll tax and not a Hut tax."

(3) "The restraining and arbitrary directing of Angoni labour practised by the Collector is (1) Out of form (the Collector should not be a labour Agent;) (2) injurious to to the Planting industry; (3) above all prejudicial to the freedom of the Angoni (practically making him a slave)."

(4) "The alleged intimidation by the soldiery and Police keeps the villages and gangs of labour in a state of terror, brings the district intothe state of a conquered country instead of a Protectorate, and tends to create a block in the labour supply of the district.

(5) "In no case could the Employers of labour be asked to do the proper work of Government in practically collecting taxes for the Government. (6) The rate of pay to each labourer being so different in different districts it should be left to the free contract between Employer and Labourer, the Angoni's welfare being in every case the Planter's interest."

(7) "The difficulties put in the way of a free ferry across the river should be taken away and the River be free to anyone desiring to cress."

It was also arranged that a special committee should be appointed to draw up a latter to be sent to H. M. Acting Commissioner on the subject, along with evidence in support of the resolutions adopted.

ANOTHER CEYLON TEA COMPANY.

Mooloya Estates, Ld.—Registered on May 12th with a capital of £50,000, in £10 shares to acquire and carry on the business of a tea planter, carried on by R. J. D'Esterre, in Ceylon, and to adopt an agreement with him. The subscribers are:—

	Shares.
F. S. Long, 10, Mincing Lane, E C, broker ..	1
A. W. Edwards, 5, Newman's Court, E C, broker	1
G. Pitman, do do do	1
A. Brown, 5, Dowgate Hill, E C, director ..	1
J. A. Roberts, do do secretary ..	1
R. S. Fairhurst do do clerk ..	1
H. J. King, do do clerk ..	1

The number of directors is not to be less than 2 nor more than 5; the first are R. J. D'Esterre, A. Brown, J. A. Roberts, and R. E. D'Esterre; qualification £1,000; remuneration, as fixed by the company Registered by Pitman & Sons, 14, Clement's Lane, London, E.C.—*Investors' Guardian*, May 19.

DARJEELING AND DOOARS TEA.

The second ordinary general meeting of the Darjeeling Consolidated Tea Company, Limited, was held yesterday, at Winchester House, E.C.,—Sir Alexander Wilson (the chairman) moved the adoption of the report and accounts. The out-turn of tea for the season had been 456,586 lb., the general average price realised being 11 annas 6 pies per lb. The gross profits amounted to £6,203, and the commissions to the agents and the managers absorbed £771. The directors recommended the declaration of a dividend of 4s 2d per share, which wonld take £1,250. With regard to the present season, an outturn of 456,000 lb. was estimated for an area under cultivation of 2,200 acres.—Mr. Gibbons urged the desirability of the company's tea being sold in the home market instead of at Calcutta. The Chairman said the point would be carefully considered. The past year had been a disappointing one, and coming in as they did, the directors had not felt justified in upsetting all existing arrangements. Certainly the board had reason to regret the prices they had obtained for the company's tea, and probably their experience would enable them to benefit from the mistakes of the past.—The reports and accounts were unanimously adopted.

Dooars Tea.—The directors' report for the year ended December 31 last states that the new gardens, Hilla and Grassmore, are nearly completed, though further expenditure is required during 1897, mainly for machinery. Hilla in 1896 yielded 187,305 lb. of tea and Grassmore 152,356 lb. On the company's gardens the year 1896 was fairly healthy, and no casualties occurred among the European officers. The weather early in the year was marked by drought and again in the months of June, part of July, and August. The total rainfall was much less than in 1895, a maximum of 130 in. being recorded at Bhogotpore, as against 193 in. in 1895 registered at Hilla. The total out-turn increased from 3,017,945 lb. in 1895 to 3,025,366 lb. in 1896. In the tea market the prices were, on the whole, higher than during the previous year, and on the gardens a sustained effort was made to improve the quality of manufacture. The company's tea thus fetched an average of 8·26d. per lb., as against 7·52d. in the season of 1895. The average price of the Dooars district was 7·62d. The rise in the Indian exchange, whereby the company's remittances to India to meet the working charges cost 1s, 2 15-32d. for every rupee, as against 1s, 1 15-32d. in the previous year, has largely reduced the company's profits. The latest reports from the company's properties are favourable. The weather has been fairly good for tea, and the labour force is stronger than in any previous year. The net profit for 1896 is £29,954, to which must be added £245 balance forward from last year. After the payment of the preference dividend, the directors recommend a final dividend of 15s and a bonus of 5s., making, with the ad interim dividend already paid, a distribution of 12½ per cent, per annum on the ordinary shares. Of the balance the directors propose to carry £5,000 to the reserve fund, bringing it up to £45,000, leaving a balance of £300 to be carried forward.

THE AMSTERDAM CINCHONA-MARKET.

Our Amsterdam correspondent writes on May 17th that since the public auctions of May 6th, 193 bales of bark, representing 1,022 kilos of sulphate of quinine, have been sold privately at steady prices. A few parcels of Succirubra druggists' quill have also been sold.—*Chemist and Druggist.*

Tea planting in Ceylon.—Under this heading Mr. John Hughes contributes to last Saturday's *Field* an article of about a column in length, from which I may quote the concluding paragraph which illustrates the practical character of the teaching:—"To succeed as a tea planter a man must be energetic in body sound in constitution and have some scientific knowledge of the composition of soils and the nature of plant food, in order to produce the best qualitiy of the green leaf while for the manufacture of such leaf into tea, further acquaintance with the principles of organic chemistry should be of great practical value and likely to assist in modifying the various operations according to special circumstances of the season's soil and situation of the estate."

EXOTICS AT KEW.

Of the many plants in blossom at the Royal Gardens, Kew, at the present time several are of special pharmaceutical interest. Among these are *Salanum crispum*, a bushy plant, native of Chili, known to the natives as Natri, which, macerated in water, is used as a remedy for typhoid fever, either as a drink or clyster. *Ledum latifolium*, or Labrador tea, a plant of shrubby character, native of North America; the leaves are esteemed as a pectoral and tonic, and during the War of Independence were used as a substitute for tea. *Viburnum prunifolium*, the black haw or stag-bush of the Eastern United States, where it forms a much-branched shrub or small tree on rocky hillsides, is valued, for its edible fruits and its bark, which is used as a remedial agent in pregnancy and uterine diseases. The foregoing are growing in the open. *Brownea coccinea*, or Venezuelan rose, a shrub from 6 to 10 feet high, with bright scarlet fragrant flowers, which, together with the leaves, are employed by the Venezuelans as a laxative and the bark as a remedy for hæmorrhoids, is growing in the palm-house, where will also be found *Saraca indica*, a small tree of the Himalayan region, Ceylon, and Malacca, and known to the Hindus as Asoka, and venerated by them as a sacred tree. The rich organge-coloured flowers, which gradually become red, are highly fragrant, and are employed for temple decoration. The bark is mildly astringent and acidulous, and is much used by native physicians in uterine affections, especially in hemorrhagia.—*Chemist and Druggist*, May 22.

JAFFNA A NEW SOURCE OF LABOUR SUPPLY.

A Matale correspondent writing under yesterday's date says:—

Today about a dozen Jaffna Tamil coolies entrained at Matale on their way to Dikoya. This is the first time Jaffna Tamils have been seen going to be employed as coolies on estates, and the newcomers will be watched with interest, as to their capability to compete with the Indian Ramasamy.

EASTERN AND CEYLON TEA ESTATES AND TRADING COMPANY, LIMITED.

Registered May 11th, with a capital of £20,000 in £1 shares to carry on in Ceylon, India, China, or elsewhere the business of planters and growers of tea, coffee, rice, cocoa, cinchona, tobacco, etc. The subscribers are:—

	Shares.
S. W. Hayward, 82, Lower Thames Street, E.C., printe	1
E. Hayward, 82, Lower Thames Street. E.C., printer	1
J. van Baerle, Market Hill, Woodbridge, Suffolk, agent	1
A. E. Scott 21, Billiter Street, E.C., civil engineer	1
W. Braine, 21, Billiter Street, E.C., book-keeper	1
F. Harvey, Central Hill, Upper Norwood, tea broker	1
J. Lornie, 79 Guildford Street, London, linen manufacturer	1

Registered by H. McCraw, 61, Chancery Lane, W.C. —*Investor's Guardian.*

OPENING UP A NEW COLONY.

The number of persons who are now going out to Mombassa, discloses the fact that the railway to Uganda is not only being well and quickly pushed on, but that the country ls found to agree with the emigrants from India. At first it was feared that they would suffer in the malarial districts from fever, and, doubtless, such was the fate of many; but the stay of the construction parties in the thick cane brakes and low-lying lands within a few miles of Mombassa is now nearly at an end, and miles upon miles of veldt are ahead of the track-layers through a rising country and an increasingly salubrious climate Indeed, in some parts where the elevation rises from four to eight thousand feet, natives of India, save those from the North West or the Punjab, may find in rather too cold for pleasantness; but the European will be likely to consider it a delightful climate, and not only is it probable that the principal railway stations will be eventually removed from the terminus to some central locality, but that the coming colonies will arrange themselves naturally in the elevated districts, where it is cool, well watered and healthy. —*Indian Planters' Gazette*, May 29.

BRITISH NORTH BORNEO.

(*Official Gazette*, May 1.)

FROM ANNUAL REPORT ON PROVINCE ALCOCK.

(WEST COAST DISTRICT.)

The year 1896 has been a most prosperous one as regards trade; and a proportionate increase in revenue has followed. As contrasted with 1895 an increase of 51 per cent is shown; similar to that year over 1894.

AGRICULTURE.—Tobacco. The crop planted in 1895 and supplied last year fetched a much lower price than formerly, owing in a great way to the state of the market where low lrices ruled. In quantity it surpassed the preceeding year by 954 bales, for, although Banguey Estate closed Langkom Estate was reopened by the New London and Amsterdam Company and 170 fields planted. During last year, the season was a splendid ene for planting. This crop throughout Marudu Bay, is an excellent one as regards quantity and quality of leaf; which is quite equal to that planted in 1894.

The following notes were taken during a visit made by me a few days ago:—

	Estate.	Company.	No. of Fields.	Average yield for field.
1	Pitas,	German B. Syndt ..	230	8·50
2	Tandik,	N. L. B. Tob & Co.* ..	150	10·17
3	Bongon,	ditto. ..	200	14 42
4	Bandau,	ditto. ..	250	10·07
5	Ranau,	ditto. ..	250	10·82
6	Langkom,	N. L. & A. Co. ..	170	10·24
		Total fields ..	1,220	Gen. Av. 10·70

* N. L. B. T. Co.'s average 11·35.

The crop of 1896 is therefore a great success and Managers are confident.

The returns of bales shipped from Province Alcock during the last nine years are as follows:—

1888.	1889.	1891.	1892.	1893.	1894.	1895.	1896.
130	800	2,664	6,466	4,890	4,497	5,060	6,014

The sad deaths of Messrs. Kamermann and Breitag, Head Manager of the London Borneo Tobacco Company, and Langkom Estate respectively were much felt by their numerous friends. Mr. A. F. Spruijt has succeeded the former and Mr. Van Leeuwen the latter. The Chinese, no longer attempt to plant tobacco at Kudat. The soil is too poor in the vicinity.

MR. CROLE'S BOOK ON "TEA."—A review of this new book will be found reproduced in our daily and *Tropical Agriculturist*. So competent an authority as Mr. John Hughes has given his opinion, that in respect of practical information for the purpose of the tea planter, Mr. Crole's volume is inferior to Mr. Bamber's which is published in Calcutta, and which we have made so widely known in Ceylon.

COFFEE.—The season for Coffee has been a good one. The increase of acres under cultivation on European Estates has not been marked, but a new estate at Mempakad has been opened under Mr. S. Murray, late of Taritipan Estate. Orders have been however received, to open 100 acres more at Taritipan and Mr. E. Walker of Mempakad Estate has commenced extending. At Taritipan, the supply of native labour, from Sulu, is increasing and Mr. E. Walker writes that he gets a fair amount of Dusun or Hill native labor at 17 dollars cents per day. This is the result of carefully treating the shy aboriginal and allowing them to choose their own hours of rest; looking at the work done at the *end* of the day as a guage of industry.

The following figures are supplied by the Managers:—

Estate.	Super-intendent.	Piculs shipped.	Average coffee.	Coco-nuts.
Taritipan ..	E. Schuck	258	200	12
Mempakad ..	E. Walker	—	36	3
Victoria Estate..	H. B. Van Groenan	30	12	—
Kudat Gardens	Chinese	10	60	—
Great Valley ..	S. Murray	—	—	—

The cultivation of coffee by the Chinese is increasing monthly,

One Tobacco estate has given out an order for 1,200 seedlings and the manager intends to work the same with convalescent coolies.

There is a large quantity of land under dense jungle available for prospectors, with good soil and water access, in Melobang Bay, about 13 miles from Kudat, or up Melobang River, which steam launches pass daily.

COCONUTS, COCOA AND PEPPER.—Nearly all the Chinese near Kudat now plant coconuts, and areca-palms. Pepper is not extending owing to the low market prices but the existing vines are well set up. Cocoa planting is limited to Taritipan Estate. In Sulu, this plant has a luxurious ground but the fruit is destroyed by a weevil, and I am afraid that the small extent of its cultivation in Murudu Bay will render it a prey to the same pest.

PLANTING NOTES.

"A MAGNIFICENT COFFEE CROP"—is the term applied by a good judge in such matters to the crop on an estate not a hundred miles from Nuwara Eliya. We hope there is to be a general good crop this season on the acreage remaining to us of our old staple, throughout Uva.—Since writing this we have seen Mr. Vicaresso who has a poor report of coffee on the Badulla side, the unusually wet season (23 inches of rain in April !) being fatal to the chances of a coffee crop.

"THE JAPAN TEA INDUSTRY."—We direct attention to three short articles from a Japan paper on the above subject, given on pages 93-94. Interesting information is afforded and respecting one of the principal districts, if not the chief district, we see that the area of cultivation—we give the equivalent as well as well we can—is 31,113 acres and the annual crop 2,133,333 lb., a "catty" equalling 1⅓ lb. avoirdupois ; but this gives only 70 lb. made tea per acre !

"COCA" AND "COCOA."—Our contemporary of the "Examiner," in a leading article written a few days back, refers to Cocaine as the product of the Cocoa tree. This error is surely unpardonable in a cacao or "cocoa" growing country like Ceylon ? Cocaine is from the *Erythroxylon Coca*—a new product much discussed in Ceylon some years ago : see pages 132-133 of our "Planting and Agricultural Review" in the latest "Handbook and Directory."

NOT BRITISH TOBACCO.—According to official reports, says the *British Medical Journal*, tobacco is adulterated with sugar, alum, lime, flour or meal, rhubarb-leaves, saltpetre, fullers' earth, starch, malt-commings, chromate of lead, peat moss, molasses, burdock-leaves, common salt, endive-leaves, lampblack, gum, red dye, scraps of newspapers, cinnamon-stick, cabbage-leaves, and straw brown paper. This is an absurd statement, and possibly refers to the tobacco of some other country. Somerest House claims to assure us that the tobacco-supply of this country is amongst the purest of products consumed by the public.

THE COCOS-KEELING ISLANDS.—An epidemic of "beri-beri"; the loss of Mr. Ross's trading schooner, which is supposed to have been stolen by a number of men who had been shipwrecked on the islands and were being sent back in her to the mainland; and the increasing nuisance caused by rats, are the main topics of interest touched upon during the last few years. To subdue the rats a number of cats were introduced, but they are so perverse as to leave the rats alone, and they are gradually destroying all the birds, including those which were taken to the islands to keep down the coconut beetles.—Local "Times," June 5.

DATE PALM CULTURE.—There seems to be a run upon the cultivation of the Date Palm in the Jaffna Peninsula and we have several requests made to us for information. It is said, indeed, that Government is suggesting the culture; but we do not see why the Date should do so well as the Palmyra, or prove more useful, in North Ceylon. We quote as follows from the "Treasury of Botany":—

The Date Palm, *P dactylifera*, is cultivated in immense quantities all over the northern part of Africa, and more sparingly in Western Asia and Southern Europe; and in some of these countries its fruit, though only known by us as an article of luxury, affords the principal food of a large proportion of the inhabitants, and likewise of the various domestic animals,—dogs, horses, and camels being alike partial to it. The tree usually grows about sixty or eighty feet high, and lives to a great age, trees of from one to two hundred years old continuing to produce their annual crop of dates. Numerous varieties are recognised by the Arabs and distinguished by different names according to their shape, size, quality, and time of ripening. The fruit, however, is not the only valuable part of this widely dispersed tree, for, as with the coconut tree, nearly every part is applied to some useful purpose. The huts of the poorer classes are entirely constructed of its leaves; the fibre (*lif*) surrounding the bases of their stalks is used for making ropes and coarse cloth, the stalks themselves for crates, baskets, brooms, walking-sticks, &c., and the wood for building substantial houses; the heart of young leaves is eaten as a vegetable; the sap affords an intoxicating beverage (*lagbi*), though to obtain it the tree is destroyed; and even the hard and apparently useless stones are ground into food for camels. Finally, we may mention that the Date was probably the Palm which supplied the 'branches of palm-trees' mentioned by St. John (xii. 13) as having been carried by the people who went to meet Christ on his triumphal entry into Jerusalem, and from which Palm-Sunday takes its name.

P. sylvestris, called the Wild Date, is supposed by some authors to be the parent of the cultivated date. It is common all over India, and, like the last, attains a considerable height. Large quantities of toddy or palm-wine are obtained from it, but the Asiatics, more skilful than the Africans, obtain it by merely cutting off the young flower-spike, by which means they do not destroy the tree. Date-sugar, so extensively used in India, is made by simply boiling the toddy,

Mr. E. E. Green.—We congratulate this gentleman (and no less the Planting community) on his appointment by the Governor as "Honorary Government Entomologist." The further liberality of the Government, in getting 12 additional copies of the "Coccidæ of Ceylon" to be placed in the Kachcheris situated in the planting districts, deserves recognition.

Tea Bulking.—We suppose the comparison as to bulking which was discussed yesterday may be summarised as follows :—

Cost on Tea Estate Factory practically *nil*.
" Colombo Stores—average½-cent per lb.
" London Warehouse equals to from 1·23 to ·66 of a cent per lb., according to size of chest.

—in the latter case, of course, apart from the loss and depreciation of teas.

Darjeeling planters—says the *Indian Planters Gazette.*—need not trouble their heads as to overproduction in their district. The following figures show that the Darjeeling crop remains steady :—

	Estimate. Million lbs.	Actual. Million lbs.
1894 ...	8·01 ...	7·07
1895 ...	8·06 ...	8·25
1896 ...	8·38 ..	7·81
1897 ...	7·64 ...	——

Darjeeling should sell well this year, as the estimate of 7·64 million pounds, though small, is considered a full one, as gardens are going in for finer plucking.

A Ceylon Planter in the Bengal Tea Districts.—The P. & O. steamer "Nubia" which recently arrived from Calcutta, brought Mr. E. W. Hancock after visiting some estates in the Sylhet tea districts, where, he says, a great deal of new land is being put into tea. The new planting, however, has suffered much from drought, and a very large percentage of the cold-weather-planting (about Dec-1896) has died out, and even earlier plantings suffered severely. Later there was rain, and the bushes are now commencing to flush. There are remarkably fine bushes to be seen on some of the Sylhet "Bheel" gardens, he says—bushes planted 5X5. After six years, they are now one sheet of tea. The best gardens are planted with "Mampore" seed. There are some fine *jats* of Mampore on Phooltullah and other estates in the district. Mr Hancock also visited Darjeeling, but the bushes there were as a rule small, and of poor *jat*. He leaves tomorrow for Hatton, on a visit to his estates and will be in Ceylon for a month or two.

Labour Supply for Coffee in B. C. Africa.—The following is the latest deliverance on the subject in the "British Central Africa Gazette," Zomba, April 15 :—

Our prediction that the month of April 1897 would witness a great influx of labour into the Shire Highlands, from the lake, from Central Angoniland, and other districts, has been fully verified. More than 4,000 labourers have come down within the last two months from Central Angoniland to work within the Shire Highlands. All of these are men who never before visited the coffee districts. The Anguru have also come in, in increased numbers, and Fort Maguire has also sent a considerable contingent of labourers who have never before been to work for fixed periods. Bandawe and the Usiska District have also sent in numbers of men. From time to time the remark is heard that, as plantations increase in the Shire Highlands we shall find the present easily procurable labour supply diminish. This is a view which we ourselves have never agreed with. The labour supply for the coffee districts of B. C. A. is inexhaustible, and every year the limits of the country from which the labour comes in gets wider as the news travels further that steady and satisfactory wages can be earned.

Vanilla and "Rhea."—Some instructive correspondence respecting both these products will be found on another page. One letter on Rhea seems to contradict all the loud talk about the great value of chemical processes, etc.

Cacao Disease in the Matale District: Important Information from Mr. J. R. Martin.—We take the following interesting statement from a letter addressed by Mr. Martin to our evening contemporary. No one in the island has a better right to give his opinion as an experienced Cacao planter and we are delighted to have Mr. Martin's assurance that things are not so bad as generally painted in reference to this disease affecting the red—not the hardier yellow Forastero—cacao. Mr. Martin speaks with authority for Matale and he knows a good deal also about Dumbara; but we believe Kurunegala is the district most tried. In any case, it is clear that an Entomologist ought to have been at work on the "poochie" many months if not some years ago—and further, how valuable would be the knowledge and experience of Mr. Martin if made widely known to his brother planters some time ago. An "Agricultural or Planting Board" could bring to a focus all such information and could also take prompt action through its specialist towards checking the pest. Mr. Martin writes as follows :—

As far as Matale goes, I can assure you, that the acreage which has suffered at all, is a small percentage, whilst the great majority of the cocoa in the district is perfectly healthy. I do not know much of Dumbara, but I do know that the estate in which this disease first appeared in that district nine or ten years ago, last year gave the largest crop on record. Another point is, that whilst the acreage under cocoa is, if anythiug, dimnishing, the export of cocoa is steadily increasing. The disease itself is, as far as I am any judge, nothing new, jak trees have always suffered from it, and probably jungle trees also. It certainly is not a root disease, as the tendency is to work upwards from a puncture, but if allowed to develope the sap becomes vitiated, and the roots thereby become unhealthy. There is, I think, no reasonable doubt that the disease originates with a *pootchie* of some sort, which works in a way something like the coconut beetle, and it is to trace this *pootchie* and learn how to destroy him that we require the aid of a scientist. The disease is practically confined to the Ceylon red cocoa, although there are instances in which forastero growing amongst diseased red has been attacked; but speaking generally, as far as we have gone, the forastero has shown itself able to resist the disease. It may be that in time, the red cocoa of Ceylon will be entirely superseded by forastero, if so the change will be gradual, and not such as to produce any crisis, and in that case we would be following exactly in the steps of the planters of the West Indies. Dr. Hart has proved beyond a doubt, that a cocoa exactly similar to our Ceylon red, was once extensively cultivated in Trinidad, but was gradually discarded in favour of forastero, principally, I believe, of that variety which grows the large yellow pod. I quite recently visited two estates in this district on which this disease was supposed to be worst. It did not strike me that either of them looked very bad, and on both the forastero was flourishing exceedingly. The disease taken in hand vigorously and in time, can at least be held in check. If the small bleeding puncture, which denotes the first attack, is at once cut clean out, the disease is checked for that time at least. Allowed to develope it becomes contagious, so that trees which are badly affected should be at once cut out almost, and forastero planted in their place. Forastero thrives excellently where the red has failed. I can instance a small estate treated in this manner in which the disease has been entirely stamped out, coolies being now sent round periodically to see if it is re-appearing. Your friend, therefore, who saw 50 and 25 per cent of his trees die out, and left them there to do their worst, rather gives himself away as a planter.

THE CHINA TEA TRADE.

It is greatly to be feared that the foreign tea trade of China is virtually a thing of the past. As was predicted in these columns, year after year, as the export tables from Calcutta and Ceylon showed an ever increasing development of the crops in Assam and the Spicy Island, the time was approaching when the taxation in China would prove to be the destruction of the trade. These warnings all passed unheeded: the Chinese pursued, with undisturbed equanimity, their fatuous policy of killing the goose that laid the golden eggs; and could not even be diverted from that fatal course when it was clearly evident that the final extinction of the English demand was imminent. A fatality seems to hang over this valuable trade in the Central Kingdom. Not only have the high officials shown utter indifference to its gradual decay: even the sagacious and clear-headed Inspector-General of Maritime Customs, parting for once with his accustomed prescience and prudence, only preached improvement of cultivation and preparation instead of strenuously advocating a large reduction in the burdens laid upon it. The result is seeen now in the almost total cessation of inquiry for the British markets. The total export of tea from China direct to Great Britain in 1896 was only 219,409 piculs as compared with one million piculs in 1885. This season the production of Hankow and Kiukiang teas is much heavier than last year and it is estimated the first crop alone will be about 55,000,000 lb. Ordinarily the decline in the British demand has been made up to a considerable extent by the increase in the Russian demand, but it is stated that Russia is now over-weighted with a heavy stock and will not be able to take more than half the above quantity, leaving 27,500,000 lb. to be shipped to England and America, against 18,500,000 lb. exported thither last year. Seeing that this is an increase of some ten million pounds, it is obvious that prices will rule at very unremunerative rates. Yet we presume there will be no reduction in the taxation that crushes the life out of this industry. In some notes on the tea trade of Amoy for last year supplied to the British Consul at that port for incorporation in his annual report Mr. Frank Cass gives some interesting details of the duties imposed on tea. He says that the crop of Amoy Oolongs in 1896 amounted to 1,200,000 lb., a shortage of 55 per cent on the previous year, and adds that "an equally marked decline is expected in 1897, after which the article will probably cease to appear as an item in our trade returns, as the tea districts are being rapidly thrown out of cultivation, and most of them are irrevocably ruined." Mr. Cass rightly says the reason is not far to seek. The entire crop realised $136,000, while the lekin paid amounted to $20,000 and the export duty to $35,000, or a total of $55,000, considerably more than one-third of the value of the tea. The Japanese Government, with characteristic foresight, last year reduced the export duty on tea in Formosa to $1.12 per picul as compared with $5.82 per picul imposed under the Chinese *régime*. This example will, of course, be quite lost on the Chinese Government, who never seem to learn anything either by the teachings of experience or by the successes of others until it is too late to profit by them. The shadow of this great loss has been impending for at least two decades, and there is literally no excuse for the crass folly which has permitted this valuable trade to dwindle to a mere nothing. The production of Amoy tea in the season 1876-77 was 27,200,000 lbs., and in 1896-97, twenty years later, this had fallen to 3,600,000 lbs! We entirely agree with Mr. Cass in the opinion he expresses—which he adds is that of the very highest experts—that all the machinery in the world will not now save the China tea trade unless a complete amelioration of taxation accompanies its introduction. And, as we have remarked before, it seems as vain to expect the Chinese mandarin to relinquish exactions on trade as for the Ethiopian to change his skin.—*China Overland Trade Report*, May 29.

"PLUCKING, PRUNING AND THE PREPARATION OF TEA."

We call attention to the following review by Mr. John Hughes of the recent prolonged discussion in the *Observer* on the above subject. No doubt Mr. Hughes reflects to a considerable extent, current opinion among thoughtful tea men at home while also giving us his own scientific views:—

The letters on the above which have appeared from time to time in the *Ceylon Observer* have offered very useful, instructive and interesting reading to all who are concerned either directly or indirectly in the Ceylon Tea Industry. The question as to the causes of the falling-off in price is essentially one for the serious consideration of planters and proprietors with the aid of tea tasters and brokers. If the fall be due to overproduction the remedy is an extended demand produced by the opening up of new markets. If, however, the falling-off in price is due to coarse plucking, injudicious pruning and careless manufacture, the complaint assumes a serious aspect and demands a fuller inquiry. If it be true that, notwithstanding the admittedly increased production, the prices for Indian Teas have not fallen to anything like the same extent as that experienced by Ceylon Teas, the existence of defective preparation or soil exhaustion must be regarded as proved.

In an article on "Tea Planting in Ceylon," specially written for *The Field* and published in the issue of May 15th, the writer has directed attention to the importance of getting young men with a special knowledge of Organic Chemistry to superintend the operations in the factory. Also of getting men as out-door superintendents who have a good knowledge of the art of judicious pruning and the requirements of the Tea Shrub in the matter of plant food with due regard to the composition of the soil.

It has been stated by one correspondent that the Indian Tea Companies have already recognised the value of employing as factory superintendents men who have had a special Chemical and Scientific training, and the improved quality of Indian Tea is largely attributed to greater skill and care in the manufacture. Hitherto Ceylon has not been wanting in enterprise and the continued energy and perseverance that the planting community have ever exhibited through years of great difficulty and doubt, certainly warrant the belief that at the present time a new departure will be made as soon as the practical need is recognised. It is obvious that different circumstances of season and soil must require a certain amount of variation in the manufacture of the leaf, and that the control of the Tea house should not be left in the hands of a native who is naturally incapable of judging to what extent variation in the treatment of the green leaf *should* or *should not* be made. It is acknowledged that from April to the end of June or July the quality of Ceylon Tea is inferior, while from August to November the arrivals are of a very different and generally superior quality.

The difference in the rainfall is no doubt the primary cause of differences in the quality of Ceylon Tea at different times of the year, but it would be interesting and probably practically useful, to ascertain the actual extent of the variation in the quality. In other words what are the properties of good tea as opposed to inferior tea. To what extent do the active constituents vary in quantity, and the respective percentages of Nitrogen, Phosphoric Acid and Potash in the different qualities of tea.

If the differences in the samples were clearly determined, it would be possible to supply in the form of manure the ingredients shown to be necessary.

Now that so many of the private estates are incorporated into public companies it is more likely that chemical experts will be attached to the large Tea factories, and when satisfactory results are shown in higher prices for the tea prepared, we may expect a great improvement in the whole system of manufacture as well as in the more scientific treatment of the growing shrub.

In the hope of hastening this more systematic treatment of the leaf these lines have been written, and if careful inquiry into the subject be the practical result, they will not have been written in vain.

JOHN HUGHES, F.I.C., Agricultural Analyst.
London, E C., May 28th, 1897.

BRAZIL COFFEE NOTES.

The coffee production of the municipality of Ouro Fino, Minas Geraes, is said to be 307,000 arrobas.

A telegram says that in S. Paulo the fall in coffee is attributed to exaggerated estimates of the crop of that state.

The *Cidade de Campinas* says that it is informed by planters of western S. Paulo that the coffee crop has been very much injured by drouth. This will perhaps help to counteract the alleged exaggeration in estimates,

We hear that negotiations are still going on for the purchase of coffee plantations in Sao Paulo. One prominent planter cordially welcomes the movement, He says the English will not only bring in improved methods of cultivation and preparation, but will secure better prices for the product. All this he considers will be of great benefit to the country.

It is a noticeable circumstance that the coffee exporters are obliged to maintain a special force of watchmen to protect their property at the D. Pedro II docks. The thefts were on such a scale and were committed so persistently that no other course was open to them. The police did nothing, and the administration of the docks also did nothing. Although the thefts have not been wholly suppressed, they have been largely checked, but at a very considerable expense. This is met by voluntary contributions by the coffee shipping firms with but two or three exceptions. Until the authorities adopt some effective measure to protect the exporters, they must continue to maintain their own watchmen, and in this every coffee shipper should cheerfully join, onerous as th e tax may be.

—According to Alexander von Glehn's coffee circular for March, the reports of the new crop are decidedly conflicting. The circular says that on March 4th Messrs. Krische & Co., telegraphed that the next Rio crop would be 3 to 3¼ millions bags and the Santos crop 4 to 4½ millions. On the following day Messrs. Steinwender, Stoffregen & Co. telegraphed that the two crops would aggregate 6¼ millions, "under the most favourable circumstances." On the same day Messrs. Goetz Hayn & Co., estimated the next Santos crop at 3½ millions.

—There is in course of formation at Hamburg a new Company under the name of Colonisation Company for South Brazil, Limited, with a capital of 1,500,000 marks. The operations of the Company will comprise the sending and settling of German emigrants in Brazil and the supervision of the Colony. The new concern will also obtain the concession for a railway from the coast of Sao Francisco bay via the German Colonies Joinville and Blumeneau, to Desterro. The present juncture in Brazil does not appear wholly favorable for an operation of this kind. —*Financial News*, March 31.

BRITISH INDIA RUBBER AND EXPLORATION COMPANY, LIMITED.

Share capital £2,00,000, in £200,000 shares of £1 each. There is also an issue of £100,000 six per cent. first mortgage debentures of £50 each. This company has been formed to acquire and develop 320,000 acres of rubber-growing territory, about thirty-five miles north of Cape Coast Castle. The vendor takes £250,000, payable in shares, debentures, or cash, or partly in either of them at the option of the directors, "but so that the vendor does not receive more shares than will enable the company to comply with the regulations of the Stock Exchange." This is a somewhat disingenuous manner of stating that, as a minimum, the vendor will receive £133,333 in cash.

The prospectus is very unsatisfactory, and the public will be well advised not to apply for shares on the very vague reports and still vaguer estimates of the company's prospects and porfits. —*Daily Chronicle*, May 26.

SCIENTIFIC GARDENING EXPERIMENTS.

"BACKWARDS AND FORWARDS."

The *Gardener's Chronicle* has an article opening as follows:—

We hear a good deal about progressive evolution now-a-days, and it suits our complacency to dwell upon it. We look back to the days of our forefathers, and plume ourselves that we live in times when Palms and Pineapples are sold on costermongers' barrows, and when many things once unheard of, or only as the luxuries of the wealthy, are now in common use. So far good, there has been marked progress in gardening as in everything else. But it is as well to recollect that reversion may and does occur as well as progress, and, therefore, that it behoves us, whether "practical" men or students, to ascertain so far as we are able the influences at work which will result in improvement, and those which, if unchecked, will tend to deterioration. Two articles in our last and present numbers illustrate very aptly the state of affairs. On the one hand, we have the Director or Kew tracing, with the aid of specimens furnished by Messrs. Sutton, the progressive development of the Cyclamen; and, on the other, we have Mr. Francis Galton asking, for scientific purposes, what plants it would be most suitable to observe, and how to manage them, so as to bring about, in the shortest and most complete manner, the reversion to the primitive condition? We learn as much or more from our failures as from our successes, and on this principle we shall profit by the practical demonstration of the causes which lead to degeneration. Thus, an investigation which seems at first to be of a purely abstract character, is soon seen to be eminently practical.

SPRING VALLEY COFFEE CO., LD.—This Company has been less fortunate than its sister one of "Ouvah," inasmuch as it did not start "tea" at so early a date; and now the alternative is offered to the shareholders of going without dividends for 3 or 4 years or raising fresh capital, thus:—

"That the capital of the Company be increased to £100,000 by the creation of 2,000 new shares of £10 each, to be called preference shares, and to confer on the holders thereof the right to a fixed cumulative preferential dividend at the rate of £6 per cent per annum cn the amount for the time being paid up on such shares, and such preference shares to rank, both as regards capital and div dend, in priority to the other shares."

We have no doubt this resolution was adopted on 4th June. The dividend for last year was 2½ per cent.

PROGRESS IN THE KNUCKLES.

THE MONSOON A FRAUD—NATIVE AND ABANDONED COFFEE LANDS OPENED WITH TEA—FINE CARDAMOM FIELDS—THE KNUCKLES ROAD.

KNUCKLES, June 10.—Extraordinary weather here. The hills have been quite distinct and weather as hot as possible for the last 4 days. Last night we had a very heavy thunderstorm, the rainfall measuring 2·60 inches, the thunder and lightning being grand. Considerable tracts of village lands are being opened for tea. This year especially several large clearings have been commenced both by natives and Europeans. Of abandoned coffee lands there must be still quite 1,500 acres in the district and with tea at present prices I dont think owners are very anxious to extend. The district has now some very fine cardamom fields and this product is being extended wherever the land is suitable. The large new factory on Madakelle estate is now nearly completed. The Panwila-Knuckles cart road is in a very bad way and we are hoping the new Road Officer will put things in order. No gravel has been laid down for years.

MR. LIPTON'S TEA MANAGERS IN LONDON WISHING TO IMPOSE A TAX OF £50,000 A YEAR ON CEYLON PLANTERS!

What tea bulking in London would cost the Ceylon planters, if all their tea were bulked in the home warehouses as Mr. Lipton's tea managers would seem to wish, may be shown as follows. On an average 20,000 packages of Ceylon tea are sold in Mincing Lane weekly and the cost of bulking in the London warehouses may be taken at 1s per package. This means £1,000 a week or say A LOSS OF £50,000 A YEAR which the policy of Mr. Lipton's Tea Managers would entail on the tea planters of Ceylon!—for the cost o bulking tea in the estate factories is practically *nil.*

Surely, after this demonstration of what it practically means to Ceylon, Mr. Lipton will cause the obnoxious circular to be withdrawn.

DRUG REPORT.

(From *the Chemist and Druggist.*)

London, May 20.

QUININE.—On May 19th the prices of most quinine salts of Whiffen's make were advanced by ½d per oz. The present quotations of Sulphate in 100-oz. lots are 9d for bleached and 8½d for unbleached; 25-oz. aud 50-oz. lots are quoted ¼d; in smaller quantities ½d above these prices. The Hydrochlorate is quoted at from 1s to 1s 0½d per oz. These prices apply to salts in bulk. The proprietors of Pelletier's quinine inform us that their quotation for vials is not 1s 4½d, but 1s 2d per oz. for so-called "English shape." The Brunswick factory has also raised its price for bulk quinine from 9d to 9½d per oz. The position so far as the other makers are concerned is somewhat puzzling. Howard's brand is still nominally quoted at 9d per oz. for bulk, but the makers decline to sell to speculators. The B. & S. and Anerbach agents have no quotations, but are expecting early instructions from their principals. About 30,000 to 40,000 oz. of second-had German quinine are believed to have changed hands at 9d to 9⅛d per oz. on the spot, and at 9¼d per oz. for June delivery. The accuracy of the last-mentioned transaction is doubtful, and there are those who say that even now an offer of 9d per oz. would not be refused for fairly new spot stuff. The market, however, has certainly a very firm tone.

VANILLA.—All varieties remain extremely firm, and there does not seem to be any likelihood of lower prices through eth summer. It depends upon the position in Mexico, where stock are extremely low. The supplies of Mexican vanilla in New York are also very small.

COCAINE.—Firmly held, and not unlikely to be raised n price shortly. Sales of Hydrochlorate are reported to ave been made at 9s 6d and 9s 9d per oz. There are now (according to the British Consul) no fewer than ten cocaine factories in Peru. Of these, one is situated at Callao, two in Lima, five in Huanoco, and one each in the Puzuzo and Monzon districts. The following figures show the exports of crude cocaine and cocoa-leaves from Peru during the last six years for which statistics are available:—

	Year 1895 kilos.	Year 1894 kilos.	Year 1893 kilos.	Year 1892 kilos.	Year 1891 kilos.	Year 1890 kilos.
Cocaine:	3,407	4,716	2,357	4,550	3,215	1,730
Cocoa-leaves:	—	372,360	390,955	388,465	128,543	—

CROTON-SEED continues to arrive, and the probabilities are that rather lower prices will shortly be seen, as this article is one of small consumption and can easily be over-supplied. The "Staffordshire" has brought 11 bags from Colombo this week.

PLANTING NOTES.

CACAO DISEASE.—A well-known planter thinks that we and others, in treating of this trouble, have not drawn a sufficiently wide distinction between the common Red variety (which is the one chiefly attacked) and the Forastero (which escapes or recovers). But our friend is mistaken: we especially drew the distinction in writing a few days ago. We quote from the letter as follows:—

In dealing with the matter you seem to class the two varieties "Common Red" and "Forestero" as one, or at any rate I don't think you have shewn enough distinction between the two. I know of two or three persons who only cultivate the latter variety and as "Forestero" is not affected to the extent that apparently "Common Red" is, why should the value of a property in the one be lessened owing to the misfortune attending the other? Forestero cocoa may get this "canker" or "poochie" or whatever you like to call it. So do jungle and other trees, but like them very quickly throws off the disease or is not affected to any extent.

THE "AUSTRALIAN BAMBOO" USEFUL IN CEYLON.—We omitted to notice one interesting passage in Mr. Kellow's letter: it is where he refers to what we think might be called popularly "the Australian bamboo," although it is known in South-Eastern Europe as "the Danubian reed." Here is the passage in Maiden's book which Mr. Kellow wished to see quoted:—

THE BAMBOO METHOD OF PLANTING.—Mr. J. E. Brown advocates the raising of wattles in bamboos. The raising of trees by this means is common in India, and has been successfully carried out in South Australia. In India the true bamboo is used because it is abundant. In South Australia a large South European reed*) (*Arundo Donax*, Linn.), which locally bears the name of "bamboo," is used instead. The reed is cut to 4 inches in length, by means of a small circular saw driven by hand or water-power. Endeavours are made not to include joints in the pieces cut, but if one should occur it is bored through. The pieces are packed together upright, filled with soil, the seed put in and allowed to remain there till the planting season. The seedling is transplanted in the "bamboo" just as it stands, and in cases where the bamboo is not sufficiently rotted, they are split up, in order to allow the roots to expand. Hundreds of trees thus start their careers, and can be transported in one small box—a brandy case for instance.

Mr. Kellow's own experience of this "Arundo Donax" is:—

The reed Arundo Donax referred to, grows here freely and when once established, will give an annual cutting of stalks from 12 to 20 feet along; besides being useful for plant raising, they make very neat temporary fences, warrachies for lines or split up into pegs for lining.

Clearly this is one more useful introduction which ought to be generally known in the higher districts.

"WATTLES AND WATTLE-BARKS."
IS THERE SCOPE FOR A NEW INDUSTRY IN THE HIGHER DISTRICTS OF CEYLON?

WE direct attention to a suggestive letter on this subject from Mr. A. J. Kellow of Albion estate, Wilson's Bungalow, who has perhaps given as much attention to the discrimination and utilisation of the different Australian acacias as any other planter in Ceylon. Mr. Kellow has long being an ardent advocate of the planting of "acacia decurrens" which, he maintains, does not run from the roots after the fashion of the more familiar "A. melanoxylon" and "A. dealbata," both so common in Nuwara Eliya and its neighbourhood. The wood of "A. melanoxylon" is so good for a variety of useful purposes, even up to cabinet work, and the tree is such a quick-growing one, that no one need regret its introduction where land is to spare; but it can be very troublesome in or near tea fields. The late Rev. W. Oakley was accustomed to show a very handsome bookcase—almost as well marked in the grain as calamander—which he had made from the timber of "A. melanoxylon" grown at Nuwara Eliya. In Mr. Maiden's valuable Monograph on "Wattles and Wattle Barks," the following is a part of the reference to this tree, the immediate purpose being to discuss the value of its bark:—

Acacia melanoxylon, R. Br., B. Fl., ii, 388.

The "Blackwood," but also known as "Lightwood" and occasionally as "Black Sally," "Hickory," "Silver Wattle."

The bark of this highly valuable timber has usually gone to waste after the wood has been obtained from the logs. "The bark is however, rich in tannic acid, and ought not to be left unutilised, though no trees of this species should be sacrificed for the sake of their bark alone." (Mueller). A sample of bark from Monga, near Braidwood, N.S.W., yielded the author 11·12 per cent of tannic acid, and 20·63 per cent of extract.

But our chief business at present has to do with the non-running "A. decurrens" and its ready growth in our hill-country and the very considerable value of its bark for tanning purposes. As regards the tree itself there is no need for the present that we should reproduce the learned botanical description of the five recognized varieties. We content ourselves with a few sentences as to the variety Mr. Kellow himself has no doubt in view, namely "Acacia decurrens Willd," the technical description of which is as follows:—

A handsome tree. glabrous, or more or less tomentose pubescent. (B), *et seq*. Branches more or less prominently angled, sometimes almost winged. Pinnæ, 8-15 pairs, or sometimes even more, rarely reduced to 5 or 6. Leaflets (pinnules) very numerous (30-40 pairs or even more); linear, from under 2 lines to nearly 5 lines long, according to the variety.

Flower heads small, globular, in axillary racemes, the upper ones forming a terminal panicle. Flowers, 20-30 in the head, mostly 5 merous. Calyx short, broadly lobed, ciliate. Petals, with slightly prominent midribs. Pods, usually 3-4 inches long; about ¼ inch broad or rather more. More or less contracted between the seeds. Seeds ovate (B), small as compared with those of most other arboreous acacias.

A more popular reference runs:—

THE ACACIA DECURRENS GROUP OF WATTLES.—The well-known feathery-leaved wattle, familiar to most people in the eastern and southern colonies,—by whom it is chiefly known by one of two names, viz., black or green wattle—was first botanically described by the botanist Willdenow, who defined two species, *Acacia decurrens* and *Acacia mollissima*. In the Flora Australiensis, Bentham took Willdenow's *decurrens* as the typical species, reducing the other species to the rank of a variety under the name of *mollis*; in other words, *Acacia mollissima*, Willd., is *Acacia decurrens*, Willd. var. *mollis*, Benth. Bentham also called another variety *normalis*, a third one *pauciglandulosa*, and a fourth (doubtfully) *Leichhardtii*.

A. decurrens is an important tan-bark in most of the colonies, and as the tree grows in the poorest soils, every encouragement should be given to its cultivation. Baron Mueller recommends planting of *A. decurrens* in worn-out lands overrun with sorrel. It is fond of moisture, and not of too much heat. The Baron also gives its rate of growth as about 1 inch in diameter every year. Mr J. E. Brown mentions some trees in South Australia 30 feet high and 8 inches in diameter, only five years of age, and I can record similar experience near Sydney.

Mr. Kellow has had practical experience not only of the growth of "A decurrens," but of the utilization of its bark for the use of Colombo tanners; and we gather that he has been paid as much as at the rate of R140 per ton for his consignments. He does not mention his outlay in harvesting, drying and transporting the bark; but this is not of so much consequence, because for any one taking up the industry on an appreciable scale, clearly the boiling-down process would have to be adopted to save the cost of carriage, which Mr. Kellow reminds us is equal to R25·46 per ton from Nanuoya to Colombo. This boiling-down process is the more valuable, because, as Mr. Kellow mentions, branches and prunings (mere trash) can be fully utilized as well as the stem bark. Maiden's reference and account are as follows:—

The preparation of extracts causes an immense saving in freight, but an extract is chiefly valuable in that it enables us to utilise everything. The following is an account of a process as carried on in South Australia at the present time, and is suggestive:—"Messrs. Barrow and Haycroft have established at Echunga a manufactory of tannage, which, from the methods employed, is almost pharmaceutical. About 10,000 tons of wattle bark are sent annually from South Australia alone, and it is calculated that the waste in stripping is about four times this amount. The new factory converts the branches, too small to pay for stripping, into a strong fluid extract called tannage, which contains water 60 per cent., and soluble tannin 38·2 per cent., according to an analysis by Mr. G. H. Hodgson of samples from the first 80 tons recently shipped to England. The wattle 'trash' yields 12 to 16 per cent. of tannage. Two men can often cut and load 5 tons, and the waggons can bring in two loads a day, equal to 5 or 6 tons; and at the price (£1 a ton) which the firm is paying for thinnings and tops and branches, so much is offering that the patentees are obliged to distribute their order. The trash is tied up in large bundles and carted into the factory. It is their weighed, close beside the machine which cuts it up into 'chaff.' This machine is very much like an ordinary steam-plane, the chisels revolving at a high speed, and cutting through 2½-inch saplings quite readily. The chips are shovelled into large wooden hoppers, into which steam is introduced from a large Cornish boiler. There are three steam-heated vats, and the liquor is transferred from one to the other, pumped into elevated tanks, and thence allowed to flow from a tap on to steam-heated evaporating pans, about 30 or 40 feet in length. The evaporation is so rapid that in traversing the pans from the one end to the other the liquid is converted into a thick, tenacious, treacly extract. At the end of the pans it flows into a cistern, and thence by a kind of treacle gate into the casks, each of which will hold about 10 cwt. All that now remains to be done is paste on a label, put in a bung, weigh the cask, and send it off to market. In the process of evaporation a certain portion of th

acid is destroyed. The plant can be easily moved from place to place. It does not pay to cart the trash far, but a few square miles of wattle country will keep a factory going. The utilisation of thinnings allows the cultivation of the tree thickly on waste ground, and to begin cutting the third year. European tanners are quite accustomed to the use of such extracts, but it is said that it will be very hard to introduce it into the colonial tranneries."—(*Chemist and Druggist*, 1886.)

These words are still in successful operation, although mucilage still gives some trouble. Wattle twigs are rich in gun and mucilage, and some cheap process, which will get rid of these substances and leave the tannic acid uninjured, is a desideratum. I have received many inquires as to whether the difficulty has been overcome, but I have had to reply in the negative, as far as a commercial process is concerned. There is very little gum in clean-grown bark, but far more in chopped twigs; extract will not be made from the former except in almost inaccessible districts. Of course, the extract in all stages of its manufacture must be preserved from contact with iron. Wooden vats are employed, and the heat for evaporation is obtained from hot water or steam. The waste bark, chips, &c., used in the preparation of the extract are first digested in cold water, and by having a serious of vats, with communicating tubes or siphons, a charge of bark can be transferred from one to another until it is exhausted to such an extent that the small remaining percentage of a tannic acid can only be removed by hot water. The vats are constructed so as to expose a maximum of evaporating surface to the atmosphere, and if the evaporation can be carried on wholly or in part by means of the heat of the sun, so much the better, firstly, because the consumption of fuel will be minimised, and secondly, because the process should be conducted at as low a temperature as convenient.

The preparation of wattle bark extract has been attempted in all of the colonies, but in only one has it passed the experimental stage, so far as I know. The process is analogous to "concentration" in metallurgical operations, for the tannic acid in bulky, unsaleable material can be highly concentrated, and barks weak in tannic acid can be utilized for the same reason. The industry of eztract-making is tempting, and I am confident that there is much money in it for some of our country district whose circumstances are favourable. I trust, therefore, that it will soon be the means of affording profitable occupation to many people.

The dark colour of extracts is an objection, and many experiments have been undertaken with the view to minimise the evil, with no very satisfactory results up to the present. Nothing is easier than to decolorise extract, but the difficulty is not to destroy the tannic acid at the same time.

The following notes relating to the making of extract of hemlock bark are taken from Proctor's "Text-book of Tanning," and may be suggestive:—"The bark, in pieces ½-1 in. thick and soveral inches long, is soaked for about fifteen minutes in water at 200 deg. F. (93 deg. C.); it is then fed into a hopper, which conducts it to a 3-roller machine, something like a sugar-cane mill, through which it passes, coming out lacerated and compressed; it next falls into a vat of hot water, where it is agitated by a wheel that the tannin from the crushed cells may be dissolved in the water; hence it is raised by a series of buckets on an endless chain, somewhat in the manner of a grain elevator to another hopper, whence it is fed to another 3-roller mill; here it receives its final compression, and comes out in flakes or sheets, like coarse paper, and almost free from tannin. The buckets are made of coare wire that the water may drip through during elevation. In order to avoid the blackening action of iron, whenever this metal will come into contact with the solutions it is thickly coated with zinc. The solution is evaporated to a solid consistency, generally by vacuum-pans. About 2 tons of bark are represented by 1 barrel (of less than 500 lb.) of extract." And, again,—"It is one of the great attractions of extracts that they avoid almost all the expense and labour inseparable from the exhaustion of other tanning materials. I is usually necessary to dissolve the fluid extracts in water or liquor of as high a temperature as has been employed in their preparation, as otherwise, from some unexplained chemical change, a large portion of the tannin is precipitated, probably as an anhydride of tannin." It is of very little use, however, looking to the local demand for tanning material to take off more than a limited quantity of the Acacia decurrens bark or extract. It is the market in Europe that must be considered and last month's London quotations for "Australian chopped bark" (catalogued as Mimosa) was from £6 to £10 10s. per ton. We suppose this holds good as well for "A. decurrens" bark, but we are unable to say how the extract sells, although, judging by the Australian trade, it must be satisfactory. Unfortunately, Mr. Maiden's pamphlet was issued in 1891 and the statistics are only up to 1889. In that year, 21,625 tons of bark were exported from all the Colonies, the value being entered at about £200,000. Now, in reference to Mr. Kellow's proposal that a Company should be formed to take up land—a free grant (?) from Government for a new industry—between Nanuoya and Ambawela, we must remember that the timber (as well as the bark) should be utilized, at least as firewood now in so much demand for tea factories in Dimbula. The return from firewood, perhaps, could not be put down at much; but Mr. Maiden's Estimate of Receipts from a wattle Plantation of 100 acres (400 trees to the acre) for bark alone aggregates £4,852 for 1,215 tons of bark gathered between the 5th and 8th years inclusive; while the total expenditure is given at £2,215, leaving a profit of £2,637. It may be said that these figures are not applicable to Ceylon, but it is very probable that with our cheaper labour and free land (if a grant were obtained) the outlay here would be less. At any rate, for the present we may leave these "facts and figures" for the consideration of any in our midst who are on the lookout for a new industry to be promoted by a Limited Company or by individuals.

It is rather interesting to note that of the three new industries now pressed on the attention of our Planting and Agricultural community, that in "Wattles and Wattle Bark" should be the only one suited for a high elevation. The cultivation of "Rhea" and, indeed, that of "Para Rubber" are more particularly adapted for the lowcountry or the lower valleys in our hill-country. We are, of course, aware that a good deal of Rubber has already been planted one way or another, and, no doubt, there are fields of Rhea in certain directions of which not much is said. It now remains that a fair trial should be given to "Wattles and Wattle Barks" in the direction recommended by Mr. Kellow under the guidance afforded in his valuable pamphlet by the scientific expert, Mr. Maiden of New South Wales.

AGRICULTURE AND SCIENCE.

Following on Mr. Green's appointment we may take the following announcement (appearing in the *Government Gazette*) to be a further step towards the goal of a fully constituted Agricultural-Scientific Board to work in the direct interests of the European and Native planters and cultivators of all

degrees in the island. Mr. Willis's detailed proposals have generally our approval, only he must recognise the fact that any letter or circular affecting the leading industries of the island will at once be, in his time as in that of his predecessors, published and discussed in the daily press and so secure a far wider circulation (among readers of English) than he or the Government could give to it among the educated community. Again, correspondence arising out of any bulletin will necessarily gravitate to the press, rather than to Mr. Willis—and the latter must remember that the planters include men of great experience and shrewdness, as well as practical agriculturists. Now, how are the "commentaries" as well as the "text" to be preserved and made available for ready reference? Mr. Willis can scarcely turn the *Gazette* into an Agricultural journal for correspondents as well as for his bulletins? It was to supply this felt want that we (personally) so long ago as 1881 started *The Tropical Agriculturist*, in which not only everything locally published, but all we can gather from other lands, bearing upon our subject, is embodied. Dr. Trimen most fully approved of and constantly contributed to the *T.A.*; while he seemed to have the index of the successive volumes (there are 16 volumes with the one closing this month and all handy of reference) at his fingers' ends, often writing to us, "I see you are discussing — — — : you will find all about that product in *T.A.* vol—page—and vol—page—" and so on. Mr. Willis's bulletins will be specially useful for reference in the monthly *T.A.* But let him beware of starting experiments or discussions which have already been threshed out in Ceylon. Beware too, of trying too much at first—essay lectures for instance; although practical demonstrations at the Gardens ought to be widely beneficial; as also the proposed tours, and inquiries as to new products, local pests, &c., which indeed might be made most useful. We are ready to help in every way in our power and think a very interesting "departure" is indicated in Mr. Willis's programme:—

COMMUNICATION AND CO-OPERATION BETWEEN THE DEPARTMENT OF THE ROYAL BOTANIC GARDENS AND THE AGRICULTURISTS, &C., OF THE COLONY.

It is very desirable that there should be greater and more ready communication and co-operation between the Department of the Royal Botanic Gardens and those whom it is chiefly designed to benefit, viz., the agriculturists, horticulturists, and botanists of the Colony. Many interesting cultivations, experiments, &c., are often going on in the Gardens, of which the public sees or hears nothing except in the brief annual report, which is not the place in which to give detailed accounts of such work. And, on the other hand, the staff of the Department, for want of better communication and means of getting information, often remain for long in ignorance of important occurrences, such as the appearance of new diseases, the starting of new cultivations or new methods of cultivation, and so on. A few suggestions as to ways of overcoming these difficulties are given below:—

I.—PUBLICATION OF INFORMATION CONCERNING THE GARDENS AND WHAT IS DOING ON THEREIN.

(1) I would suggest the publication at intervals of a series of circulars or bulletins, each as a rule dealing with one subject only. The cost of a one-page circular would be about R3 per 1,000 copies. These circulars might be kept at the Gardens and distributed free or sent by post or receipt of a stamp for postage. Their publication should not be at fixed intervals, but whenever required. As examples of what is meant, the first few might deal with "the Chocho," "Rhea fibre," "the Cacao disease," "new ornamental plants," and so on. In some cases Sinhalese or Tamil translations might also be prepared for distribution among the villagers.

(2) I would suggest the publication in the *Government Gazette* and elsewhere, if thought desirable, of advertisements of important seeds or plants on sale at the Gardens.

(3) I would also suggest the giving of occasional lectures on important subjects, such as diseases of plants, new cultivations, &c., by the staff of the Department in Colombo, Kandy, or elsewhere. Also the giving of occasional demonstrations at the Gardens upon such subjects, *e.g.*, upon rubber-tapping at Henaratgoda, or upon fibre plants at Peradeniya., Notice of such meetings in Kandy. Such lectures or demonstrations could hardly fail to be of mutual advantage both to cultivators and to this Department.

II.—THE COLLECTION OF INFORMATION BY AND FOR THE DEPARTMENT.

(4) I would suggest that occasional tours be made in different districts of the Colony to investigate the various cultivations carried on, the diseases of plants, &c.; and that the results of these investigations be from time to time submitted to Government as special reports, which might also, when deemed advisable, be published as separate bulletins or circulars (see above).

(5) I would suggest that the Superintendent of Hakgala Garden and the Curator of Peradeniya Garden should be authorized to travel with or in place of the Director on these expeditions whenever the aid or advice of a highly skilled practical Gardener is needed.

(6) I would suggest that the Government Agents and other Administrative Officers, native headmen, Secretaries of planters 'Associations, &c., be requested to assist this Department by informing me from time to time of new cultivations started, old ones abandoned, outbreaks of diseases, and so on. Such a request might well form part of the first (introductory) circular issued by this Department.

JOHN C. WILLIS,
Director, Royal Botanic Gardens

THE CACAO DISEASE AGAIN.

Mr. J. R. Martin affords us a very straightforward account of his connection with the steps taken to provide for the scientific investigation of the cacao disease. It shows that so far from being opposed to such inquiry, he has specially courted it—only that he dreaded exaggerated reports of the extent of the evil so soon as it was known the Government had been moved to take the matter in hand. We can sympathise to some extent with this feeling; but the great matter to be regretted now is that Messrs. Martin and Dickenson did not know how exactly Mr. E. E. Green, was, as an entomologist, fitted to undertake for them the investigation inquired. We take it Mr. Martin has not seen Mr. Green's scientific work or he would have felt safe in inviting him to examine any trouble or disease attributable to a "poochie." Had it been a fungus, the case would have been different. But, as matters stand, we trust the Government will lose no time in asking their "honorary entomologist" to visit, examine and report on the cacao disease, induced by a "poochie," in the Matale, Dumbara and Kurunegala districts. Even if Mr. Green were unable to provide an adequate remedy, his report could not fail to supply the information required at Kew or by referee experts in the mother country.

THE TRINIDAD BOTANIC GARDENS.

We have before us the Report for last year on the Royal Botanic Gardens of Trinidad by their accomplished Superintendent Mr. J. H. Hart; and it may be useful to touch on some of its main features, in connection with the Administration Report on our own Botanic Gardens from the pen of the new Director, which we recently noticed. The interesting West Indian Island is, of course, a much smaller charge than Ceylon, covering as it does only over 2,000 square miles against our 24,000; but the metereological conditions, so far as mean temperature goes, are much alike—the island being situated between 10 and 11 degrees North Latitude and 61 and 62 West Longitude, against 5 and 10 degrees in our own case, and 80 and 82 East Longitude. There, January is described as the coolest month, Febuary the driest, May the hottest (as has been our experience this year), June the wettest, and August the moistest. Its rainfall, however, does not show the great divergence which is seen in Ceylon with Padupola claiming nearly 230 inches, while Maruchikadu has to be content with less than 23; for we find that the highest fall for the year was in Sangre Grande which had 154 inches, and the lowest Moruga Police Station with less than 40 inches. The average for the whole island is 81·52.

We learn that the work of the Herbarium has made steady progress during the year, the collection of specimens of the Island Flora being made gradually more complete; while the whole of the indigenous plants have now been separated from those which are known to have been introduced from other countries. The very interesting re-discovery is chronicled of the *Sacoglottis amazonica*, as a result of a special expedition into the Trois district; and the importance of it is enhanced in that it has definitely decided the source of one of the drift fruits" discussed in the reports of the "Challenger Expedition." Another "find" illustrates the difficulties attendant on accurate botanical research. For years Botanists have desired definite information in regard to the tree locally known as the "Contrevent," and nine years have elapsed since Mr. Hart's Department commenced the investigation; but the distance to the habitat of the trees, the short period of flowering, and the height of the great forest trees, opposed such difficulties in the way of obtaining good specimens that the result has been only one fairly good single sheet of Botanical specimens. By the aid of this sheet, however, the Director of the Royal Gardens at Kew has been able to determine, that the locally well-known tree is an undescribed species of the order *Sapotaceæ*, and not a *Lucuma multiflora*. Under the same heading we find a paragraph on the destructiveness of fungi, even where hard-woods are concerned, which we reproduce for the information and guidance of agriculturists and builders alike:—

Polystictus sanguiness, L., a finely coloured fungus, was found destroying hardwood gate-posts in one of the pastures; posts that had only been in the ground a few months being entirely destroyed. From this and other observed instances it appears evident that the knowledge of the destructive nature both of Saprophytic as well as Parasitic fungi, has not as yet been put to such practical use as it might be. Perhaps the fact that people who have not had them under close observation and study can hardly realize that such apparently (to them) insignificant organisms should do so much harm. We constantly see builders, carpenters &c., laboriously tarring or painting and even charring the ends of posts, the sills of houses, and the flooring of bridges, &c., &c., when the work is often absolutely worse than useless; for the germs of decay in the form of the mycelium of a fungus have already permeated the woody tissue, so that all they do in many cases is to seal up in the interior of the wood, and in a suitable place for its growth, the vegetative and most destructive part of a Saprophytic fungus. The indications of the action of these minute vegetable organisms is much more pronounced in a tropical, than in a temperate climate; the destructive action is much quicker, there is far better opportunity for observation, and the damage is more quickly apparent. Modern Science shows, however, that the only means of properly treating or preserving timber is first to sterilize it by heat, to thoroughly dry it, and afterwards to use outside preservatives in the form of paint, tar, or charred surfaces, &c., &c., Creosote is often used to preserve timber, but unless the operation is performed exceptionally well, "Creosoted" timber fallf a prey to "dry rot," otherwise fungus, almost as readily as any other, especially in the Tropics. Applications of preservatives should always be made under pressure, and with sufficient heat to destroy the growing parts of these destructive fungi.

Among the work undertaken by the Department was the revision of a pamphlet intended for the guidance of emigrants from the United Kingdom; and it is hoped that the correct information supplied will have the effect of attracting capitalists seeking investment in the Tropics. Government House being situated within the bounds of the Gardens, the Department has not disdaned attention to flowers, and has even engaged in decorative work by furnishing plants for ball-rooms and places of public and private entertainment. We are in advance of that here; but we are not sure that the number and enterprise of Florists and Nurserymen in our midst, adequate as they are to render the intervention of the Botanical Department unnecessary for decorative work, are sufficient to relieve the Botanical Gardens of the task of cultivating flower and foliage plants for sale to visitors. We know that successive Directors have expressed impatience with this branch of their charge; but does it not serve a purpose in rendering the Botanic Gardens bright and attractive, and especially in training Gardeners for better work—apart from the help it gives in propagating specimens not easily obtained elsewhere, and not so readily within reach of all classes? The Trinidad Gardens, while helpful to local plant fanciers, have not been neglectful of foreign exchange and distribution, as the statistical tables show. The Department keeps in its hands the issue of a quarterly Bulletin of about 25 pages, neatly and attractively got up, which must be of help and interest to the planting and agricultural as to the general public. Here the *Tropical Agriculturist*, and to some extent the daily Press, have hitherto obviated the necessity for such a compilation, pending the publication of the Annual Reports.

From the notes on the Economic Section, we learn that an experimental plot has been established in the Gardens for raising and testing seedling canes—sugar being the main staple of the island. The culture of 41 varieties was commenced during the year, and 86 examinations were made to test the quality of the canes, in regard to the constituents which give them value. One of the facts ascertained by experiment is that the canes did not reach their maximum yield until nearly the end of the crop season which, curiously is in May, or even after, whereas in British Guiana which is not far off the season closes as early as December! During the year as many as 7971 seedling canes of the best of the new varieties were distri-

buted. On this point, as illustrating how much Botanic Gardens can do to help agricultural enterprise, as has been early and earnestly recognised by our own Director, we quote as follows :—

Although I am unable to report on the value of the canes grown during 1896 at the Gardens, still I am able, through the kindness of Messrs. Jenman and Harrison, to mention that their best seedlings have again for the fifth time maintained their pre-eminency over the older kinds, in yield per acre and in richness of juice, so that planters in Trinidad may have the satisfaction of knowing that the canes distributed to them have been through long and carefully conducted tests, both agriculturally and chemically, for a series of years ; which should be a reliable guarantee of their character. I do not think, however, that any cane should be recommended to the planter as being of the highest class until it has been widely and largely cultivated in the field, and no one has been more careful in this than the Demerara growers. It is certainly the duty of the seedling growers to advise the very careful extension of the area under cultivation in new varieties, and therefore the extension of that area is a matter that must rest with the planter alone. While refraining, however from recommending any particular cane, the planter's attention should be called to record of the yield of the several varieties on the trial fields, for, by knowing the character of these fields and the cultivation given, they should be able to select from the assortment offered that cane which will be most suitable to their purpose, or best suited to the character of the land which they may have under cultivation. We have an example in the Burke Cane which is highly instructive. This cane, it appears, is one which, seen upon the field, is certainly one to make glad the heart of the planter, but when it comes to the factory it is found to yield a juice which is not equal to that obtained from the older varieties. The megass also—now used for fuel in all modern factories —is deficient in heating power, when compared with that of the older kinds. Notwithstanding these facts, there is not a little to be said in its favour. The cane has certainly a very vigorous constitution, and is but little subject to disease in comparison with some others, and it may moreover become especially useful as a parent plant for future seedlings, by giving a strong vitality to its progeny.

Then follow remarks on pineapple seedlings, cacao (containing much of interest to local growers, part of which was reproduced in our Director's Report), varieties of coffee (which is attracting the attention of planters in view of the fall in price of cacao), citron, oranges and other products, which we cannot do more than mention here ; but we are sure to reproduce most of the interesting paragraphs at length in our monthly periodical. A special interest attaches to the Report under notice, as it marks the completion of a century of British rule in Trinidad, and the eightieth year of the existence of the Gardens on their present site—the oldest West Indian Botanic Gardens. Long may they flourish !

THE DISEASE AFFECTING CACAO TREES.

in different districts is thus considered by a correspondent who has not, so far as we know, hitherto taken part in the discussion :—

The cocoa disease is most certainly not a root disease; there, Mr. Martin is right—but the Poochie is well known, and described in Mr. Vander Poorten's letter to you some time back.

Mr. Martin says :—It certainly is not a root disease as the tendency is to work upwards from a puncture, but if allowed to develope the sap becomes vitiated and the roots therefore become unhealthy. Here Mr. Martin is wrong, if the insect attacks the tree anywhere above the collar there is a strong chance of a healthy sucker growing and, forming a fine tree. I have seen dozens such now years old and believe them to be healthy today.

A superintendent of a large estate in Dumbera was heard to say, hardly one tree originally planted now remains, but have been replaced ; on another not in Dumbera, figures were given me showing 33 % cut out in 18 months. Can this be the place Mr. Martin refers to—where does profit come in. I went through an estate a few days ago where in spite of trees being regularly destroyed, the disease increases—why ? *the Poochie's attack is only discovered when the damage is done,* when one discovers the bleeding (described by Mr. Martin) the only sure way is to cut the tree down and burn the part cut away.

I have treated and seen treated hundreds of attacked trees with but poor results and have seen fields where supplies of the hardy kinds have refused to grow and on others they have come on well—the work done by the same man, A. V. De P.

I told a cocoa planter 18 months ago of this pest, he did not know of it then, but was confident *he* could overcome it should it attack *his* property it has done so and now he makes people believe ; he has no trouble for it only takes a certain time to replace the tree.

I saw the disease on an estate when it first showed up there and counted 40 trees in a patch, I said they were doomed and they died ; this place which had been a good one became the talk of the district and from being as dense as a forest, one could look all over the place. These are facts. I can give you names and places for all I state and are these in themselves not enough (as you say) to show that an Entomologist ought to have been at work long ago. It is right down foolish to say we in this or that district, have not much to complain of thus throwing cold water on a pressing need ; let them wait and in a very short time their turns may come. Dumbera first, Kurunegala second, Wattegama third, why not Matale fourth. You are right, no time should be lost—in fact too much has been lost. My idea is still that people holding cocoa property wish to hush up the fact that it is in a bad way from various causes, but particularly the poochie in question.

THE AGRICULTURAL SCIENTIFIC BOARD.

A shrewd, but somewhat cynical, planting authority speaks out as follows :—

" The Government has at last had its eyes opened to the need of scientific men being employed to investigate pests affecting the agriculture of the country. The attitude of the late Chairman of the Planters' Association, the then Planting Member of Council and of Mr. T. North Christie when Messrs. Gibbon and Cross agitated for a Scientist, put back the clock ; but Mr. T. North Christie, like the wise man he is, saw his error and did his best in advising the present Governor to hurry up the appointment of an investigator. However, planters, native and European, will have to be on the alert, lest the present flash in the pan dies out with the honorary appointment of Mr. Green. Why don't we have Honorary Colonial Secretaries, &c. ? Government will spend money on beautifying Nuwara Eliya or any place where it is pleasant to pass the hot season ; but spending money on scientific departments will not catch on long. If some of the money spent on the tomfoolery Sir Arthur Gordon indulged in, when he multiplied Government Agencies and so multiplied Provincial offices and cost of buildings to represent worthily the splendour of those new Provincial Chiefs, had been devoted to providing a decent salary for a proper Railway Manager, or salaries of scientific men to report on our Agriculture, &c. What a blessing to Ceylon that would have been ?

" Peg away, therefore, till we have two Scientific Investigators to watch over the Agriculture of the Colony, and have nothing to do with Honorary Appointments."

MR. CROLE'S BOOK ON TEA.

Tea.—A Text Book of Tea Planting and Manufacture; comprising chapters on the history and development of the industry, the cultivation of the tea plant, the preparation of the leaf for the market, the botany and chemistry of tea, &c., &c., with some account of the laws affecting labour in tea gardens in Assam and elsewhere, by David Crole, late of the Jokai Tea Company, &c. (Crosby, Lockwood and Son, London.)

This is a substantial and attractively got up volume. Though not fully illustrated in accordance with modern ideas in all the departments of cultivation and manufacture, it contains many graphic full-plate illustrations of forest jungle clearing, elephants loading timber, and entirely novel and capital views of tea in Natal supplied by the Colonial Office, which alone are a great acquisition. In addition to this the end of each chapter is embellished with an effective "tailpiece," illustrative of tea gardens, Chinese and other antiquated methods. A map showing the tea districts of India and Ceylon is also given with many plans of buildings diagrams and numerous tables of statistics analyses of teas and soils. In the preface we learn that the author has had varied and important experience on plantations in Assam, and that he also spent the best part of two seasons touring amongst gardens in India and Ceylon, all giving exceptional advantages for the preparation of such a work. The book deals with the subject historically, practically, scientifically, and statistically. No such comprehensive effort in the literature of tea has hitherto been made.

There can be no doubt that Mr. Crole renders good service to the cause of tea in much that he recommends. He strongly and repeatedly urges the introduction of labour-saving appliances, especially in outdoor operations, such as the preparation of clearances prior to planting, draining, &c.; well-arranged buildings of sufficient capacity and fully equipped with machinery to cope with the greatest possible rush of leaf, pointing out how every manager who wishes to earn and enjoy success must take advantage of every detail whereby labour and time can be saved; the partitioning off of the artificial withering house into apartments to be worked independently, and so on. In the view of recent and present enormous extensions and probable over-production, he reiterates as a necessity, the pushing for an extension of foreign markets with the utmost energy, and warns planters that it would be wise if they would expend some of their profits in opening out new and extending markets rather than in bringing still more tea under cultivation. Mr. Crole very commendably contributes to the condemnation of our London warehouse abuses. He also dwells upon the important matter of preventing damage from fires by means of hand engines, hose, buckets, and asbestos painting. This cannot be too forcibly or too frequently brought home to all concerned. We know of factories with an ample supply of water, fitted with hose, and with pressure to eject the water over the roof. Yet the most careful are the most grateful for the reminder that the apparatus should be kept in perfect working order, the hose always *attached* and the buckets ready, and within easy reach for any emergency, to obviate delay in case of darkness or excitement. Knowing the risks incurred on tea gardens in too many instances, the wonder is not that premiums of insurance are what they are, but that they are not really much higher. And we cordially endorse Mr Crole's suggestion that owing to the fall in exchange—the more so as proprietors gain so much by it—in all cases where the remuneration of European employes is in rupees, and upon the former scale, it should in fairness be readjusted.

Readers will find much besides that is at least suggestive on such subjects as the use of tramwys, trollies, and turn-tables in the factory and upon the garden, drainage, diagonal and triangular planting, plucking machines, the use of dynamite in clearances, the refrigerator in fermentation, an improved method of dealing with frontier tribes by the taking of hostages, hybridising, grafting and enarching to improve and invigorate the tea stock, and much else touched upon. It must, however, be admitted that the last-named suggestion fails to bring much consolation to those interested in the 912,500 acres of British grown tea Mr. Crole estimates to be already under plant.

The author informs us that his hardest task was over the historical section. He has evidently drawn from all sources and does good work in the compilation of this, but it is open to doubt if very much has actually been gained to the tea historian in the way of accuracy or completeness. Mr. Crole, after dwelling at considerable length on the subject, and going into detail as to the proof of it, arrives at the generally accepted conclusion that that there was originally but one species of tea, the Indian, and from that country it found its way to China, the stunted proportions and diminished proportions of the China variety being the result of unfavourable conditions of soil, climate, and treatment for centuries.

The treatment of the "Chemistry of Tea" seems too much a lecture on organic chemistry and text-book work without much special reference to tea. We are not shown the result of investigations. For instance, we are told, what has often been heard before, that light is objectionable in certain processes, but no proof is given of this. There are no comparative tables of analyses (none of Darjeeling tea at all) showing the different constituents of "quality" and "inferior" teas, or the results of good and bad methods, or the changes that actually occur in the different stages and processes. Notwithstanding the sweeping denunciation of the "meat tea," the evil effects are only *in posse*, but do not follow in fact. Were Mr. Crole practically right, there should be no meat or eggs to breakfast, and little tea-drinking. We doubt if much light has been thrown upon science in tea, but, all the same, Mr. Crole has rendered a great service in writing upon a subject too little studied or thought about, which cannot fail to lead to discussion and further study and investigation, to the advantage of the tea industry.

Like the historical portion, the statistical is very comprehensive, and drawn from all sources. Upon this head, we would merely remark that, under the apprehension of over-production, it is some consolation to have good reason to believe that the area under tea, for 1897 even, is considerably over estimated at 519,500 acres. In regard to Ceylon, put at 400,000 acres, we have returns till the close of 1895 (a year later than have yet come to hand for India), and we know that the best Ceylon authorities do not estimate their area as more than 340,000 acres at the close of 1896, or say, more than 365,000 acres for 1897 at the outside. For India the latest official returns we have seen are till end of 1894, by which the total area was brought out at 423,005 acres. The increase throughout India is difficult to estimate; but with the exception of Travancore and Cochin (probably under-stated) we are sure it has been over-estimated, and in the case of one of the leading districts the area is certainly put down at 30 per cent more than it is at present. Though interesting to know, it is impossible without reliable local knowledge to state even approximately the extent under tea in the Straits Settlements, Fiji, &c. But if this has been over-stated the total result is not seriously affected. From the Government Blue Books these areas would seem to have diminished rather than increased in recent years. We should not be disposed to put the area of British-grown tea at over 780,000 acres at the close of 1896, or 850,000 acres at the present time.

As regards the practical in tea, we must as far as possible pass over controverted points.

Mr. Crole is untiring in his condemnation of the so-called China plant, and speaks of it as "a curse that at one time seemed as it would prove as disastrous to Assam as ever the *Phylloxera vastatrix* has been in

France, or the *Hemileia vastatrix* in Ceylon." The fact is that while no one will deny that the Assam plant, or at any rate a hybrid suitable for the locality, is preferable, the most has not been made of the too much despised China bush.* It has never had a really fair chance in Assam. The failures prior to, and the crisis of 1866, brought a reaction against the China plant, and other practices sound in principle, such as the distance apart plants should be put out, and led to serious mistakes in opposite directions. It would seem that the hybrids at all allied to the China plant are held but in little better repute by Mr. Crole. While he claims that the produce of the indigenous plant brings 10 per cent. to 20 per cent. per lb. more than that of the China in the London market, he seems to overlook the fact that the indigenous quality very rarely has brought the best prices, except in the olden times when Indian tea was used, and in small proportions, for blending, and what has long been the highest-priced tea in the world is the produce of a mild hybrid or of a blended variety of plants upon Darjeeling gardens, where the China kind predominates. Of course, apart from *jât* of plant, *quality* is greatly a question of soil, as exemplified in Assam as well as the Darjeeling district. We doubt whether Mr. Crole has ever gone to the root of the vital questions affecting the thorough preparation of land prior to planting and enlightened cultivation afterwards. His remarks seem not to go beyond what will admit of the methodical and perfect lining out of a garden. Depend upon it, this is a more vital matter. Success in the long run, failure, or recovery from failure, will ultimately be found to depend more upon the field than even the factory, most important though the latter be. Certainly the book displays no acquaintance with hill cultivation and its be-setting difficulties. As to buildings, his plans seem rather those of some existing factory than of what would be perfection. All are upon a gigantic scale, no doubt, and suggestive of grand ideas, but certainly not always with an adequate regard for arrangement or economy of space. We question if houses for the natural withering of leaf, so wide as specified, would act at all satisfactorily, even in the climate of Assam. Nor would a common chimney stalk, for boilers with underground flues from driers connecting work satisfactorily, unless situated upon a mound or knoll; and there are insurmountable drawbacks to underground pits for main shafting which with economy of space and outlay can be placed overhead, where it can infinitely more easily be seen to and kept in good condition. In machinery many obsolete machines ("Lyle's" is styled "*Lyall's*) and others of which experience could only have been had in the patentee's yards—where they cannot be thoroughly tested—are confidently recommended. And how can it be seriously asserted, in this year of grace, by any practical man, that the rude bag machines could ever roll "fine leaf" better than a modern machines such as the "Rapid," which is as near as can be imagined perfection? Most will admit that there was a waste of labour where two able-bodied men or more were placed in charge of one roller, as was not unknown in old times when a single machine hod to get through three times the work one is put to in these days, yet all must pity the one boy who is put to attend to "six machines in full swing"! It seems also difficult for the lay mind to understand from "acquaintance with the weather," or "the feel of the leaf on the chang.," whether the leaf is liable to get heated or not in the machines irrespective of speed, pressure, or closeness. And strange that the time required for fermentation is to be determined by the difference between one garden and another, and in no measure to the season of the year, temperature of the day or whether. The great subject of manuring, sufficient alone for a volume, is but casually alluded to in the chapters upon the "Botany of Tea" and "The Coolie"; and the practical application of *Leguminosœ* to tea is dismissed with such few words as might indicate that after the MS. had been completed a line or two alluding to this subject (and what the author terms "green soiling") have been interpolated on noticing attention recently directed to it in various quarters. On blights the work is conspicuously defective as to practical suggestions. The author from his remarks does not seem aware that the old-fashioned cure of sulphur applied upon a simple and expensive method, has long ago been proved an effectual remedy for red spider, and at the same time a valuable manner in many instances. The only light shed upon this much vexed question is that Mr. Crole has discoveed two new species of faggot worm which he adds to the legion of parasites he gives as preying upon tea.

Many other similar topics, most of which may seem of minor importance, might be alluded to.

There is often a mingling of the old obsolete objectionable methods with the approved and the ideal which we fear may have a tendency to mislead the uninitiated. For instance, when seriously told of tea seed having been sown broadcast from the backs of elephants, who were "made to peregrinate in a more or less aimless manner about the land it was desired to bring under tea," which could never be more than a piece of pure romance, it is going too far. And we cannot refrain from protesting against the injustice done the industry in representing that it is the sick, and those suffering from sores and accompanied by babies that are employed to handle the tea in sorting in the final stages, while the fact is that no such thing has been tolerated in any well-regulated factory during the last fifteen years.

In the interests of the tea industry we feel bound to notice a few recommendations which are fraught with danger. The best distance for planting a garden is said to be 4ft. by 4ft. 16ft. = (or even = 13·85 superficial feet of space per plant if planting triangularly as recommended). This is opposed to all sound principles of planting. On the contrary, for fully developing the capabilities of a garden, in the long run, for Assam we should say twice this space, at least 6ft. by 5ft. (and for the hills say 5ft by 4½ft. on the base) should be allowed; and with a view to cultivating by machinery, as advocated by Mr. Crole, even lines wider apart would be an advantage. Mr. Crole remarks that hoeing should always leave the soil rough. Clod cultivation—or as in some cases as practised it might even be styled slab cultivation—is a great fallacy in tropical culture, especially when lengthened periods of dry weather may be expected. Pruning by measure is reprehensible (as well as antiquated, surely), and if not in some instances the leaving of heavily-cut bushes unpruned next year, certainly the "slashing them across the top"; worse still to burn down root and branch as a remedy for musquito blight, a cure certainly infinitely worse than the disease. The eliminating of all *banji* leaf, as advocated, not only unduly weakens all except the most robust bushes, but deteriorates the quality of the after flushes. In those days where quality above all should be aimed at, it is objectionable and entirely unnecessary to handle all the tea, or any but the coarser, in sorting; and we cannot agree with the author (though the majority may yet do so) that tea deteriorates (but the very reverse) in properly constructed "bins." Neither ought chests to be packed to contain so much as 150 lb. of tea, but we would rather name 95 lb., or at most 100 lb., as the net limit. We are confident that tea ought to be bulked at the factory, not only because there it can be best done—considering the present methods and appliances at the London warehouse—but to curtail the warehouse charges as exemplified in the profits of 45 per cent and 80 per cent consecutive dividends from one warehouse company shown in some tea company's printed accounts.

Mr. Crole alludes to a question recently raised by a "silly letter" in a religious journal; and states it to be his opinion that troubles between the planter and his coolies are invariably due to want of tact

* Quite true: there is a field of pure "China" in Ceylon yielding a full crop of very fine tea, but this is at a high elevation—and although a "hybrid" may be, generally, more profitable, much can be done with "China" at high elevations both in India and Ceylon. —Ed. *T.A.*

on his part; that employers with married assistants, and even managers, are placed at a disadvantage; and that the directors of companies would scarcely be acting within their province if they constituted themselves the censors or guardians of their employés' morals.

We have only indicated some of the subjects, all of which had many more Mr. Crole deals with in detail. Though it has been far from our wish to criticise more than is imperative, and we have done so on all material points, we are well aware that we have not done justice to many excellencies. Our desire is that all study the volumes for themselves. It has often been forced upon us that, with very few exceptions, practical planters belong to either of two classes—(1) Those who do not feel equal to writing at all, or will not take the trouble to give the public the benefit of their experience; (2) those who believe they know everything, but for this very reason do not see the force of divulging their secrets to make others as wise as themselves. We can to a certain extent sympathise with both classes. Owing to the occasional vagueness of expression in one so gifted with a facile pen, we have not been enabled entirely to divest ourself of the suspicion that Mr. Crole naturally reserves a good deal for his opportunities when consulted professionally. As so few will write about tea, we do not forget that those interested in the industry are placed under all the greater obligation to the author for the attention he has devoted to, and the interest infused into all branches of his subject.

In conclusion, we congratulate Mr. Crole upon the successful issue of his labours, as a whole, and again most cordially recommend his book to the general planting public, trusting it may find its way into many hands.—*H. and C. Mail*, May 21.

JAPAN TEA.

The delicate flavour and aroma which the Japanese tea-drinkers make so much of in the so-called "new tea" will not probably strike foreigners as anything specially palatable. As soon as the new leaf is on the market, all tea shops display a notice with two Chinese ideographs representing "New Tea," written in conspicuous style. The labour and care involved in raising and preparing tea are really beyond the appreciation of outsiders, to whom the leaves come packed in boxes carefully sealed and labelled and ready for use. The quality of tea depends not only upon the nature of the leaf itself but also upon the time of picking. For instance, leaves picked at night-time, wet with dew, will make tea of superior quality, while those plucked in the day time make an ordinary tea. From the end of April, the famous tea plantation of Uji near Kyoto, presents an interesting and busy scene as the picking season sets in. This place enjoys an unrivalled reputation in this country as producing tea of the best quality, the nature of the soil and the climatic conditions there being specially adapted for its cultivation. A village in Uji, called Ikeno-o, claims the unique honour of producing tea for the consumption of the Imperial Family. It is said that the nature of the soil is not the sole consideration for the production of tea of superior quality. When the new leaves began to sprout, tea growers plant posts in four corners of the garden, and at the height of about eighteen feet they stretch bamboo poles, over which they lay a straw covering specially provided for the purpose. This is done partly to protect the shrubs from being frost-bitten and partly from a curious idea that drops of rain dripping through the straw impart some additional flavour to the tea-leaves. Hence the name "Gioku-ro" (Pearly Dew), given to the leaf of the best quality in this country.—*Japan Times*, May 14.

According to the *Osaka Mainichi*, the prospects of the tea crop in the vicinity of Kyoto (the favourite Uji tea) are good. The gathering of the tea for export to America is already finished and the leaf is now in process of manufacture. The picking tea for home consumption was to commence on the 10th inst. The crop was bad last year owing to damage caused by frost and worms, but the case is very different this year, the prospect being bright in every respect. The budding was delayed a week this year, but it seems that this does not affect the success of the crop. As the crop failed last year, old stocks in the market are small, and consequently there will be an increase of 10 *yen* per 100 *kin* in the quotations compared with the corresponding period of last year.

A deputation from the Japan Tea Guilds, consisting of Messrs. K. Ito (Kyoto), S. Mihashi (Shizuoka), S. Miyama (Miye), and S. Saka (Tokyo), has had an interview with Mr. Oishi, Vice-Minister of Agriculture and Commerce, on the subject of the new tariff proposed in the United States. They point out that the price of tea in Japan is 20 *yen* per 100 *kin*, and a duty of 10 cents per pound will just double the price; to this must be added freight, insurance, commission, and other charges, which will bring the selling price in the American market up to 65 *yen* per 100 *kin*. This, they imagine, will put an end to the sale of Japanese tea in America; but they overlook the fact that the Americans must have too, whatever the price may be, and prices of all teas alike will go up, whether from Japan, China, or India, so that the increase of duty really concerns Japan very little indeed.—*Japan Times*, May 15.

The Yokohama Tea Traders' Association issued eht following instructions to the tea-producers in Gifu *Ken* on the 15th instant:—(1.) That it is necessary, as the result of the American Regulations prohibiting the importation of tea that all tea should be of superior quality. (2.) That the manufacture of green tea should be abandoned if possible, but if not, to improve the quality of that kind. (3.) That any leaf that is in any degree rotten should not be used.

We learn from the *Yomiuri* that the following advice to the Yokokama Tea-dealers guild was issued by the Municipal Office, on the 14th 14th inst:—The law prohibiting the importation of bad tea to America, lately passed. might prove advantageous to the Japanese tea-dealer, in the sense that it warms against the export of bad tea and consequently would tend to raise the demand for genuine Japanese tea among the Americans. If, on the contrary, there should be shipped even one chest of tea against the law, the result is not only the loss of that particular chest, but obstacles will be thrown in the way of Japanese exports in general. It is, therefore, absolutely necessary now the tea season is on, that tea-dealers should take great care in the manufacture of tea and thus maintain the reputation of the Japanese product.

The total quantity of new tea arrived from various quarters and now in Yokohama is said to be about 400,000 cutties.—*Japan Times*, May 18.

The quantity of tea leaves turned out from tea-farms in Uji districts is said to average 100 *kwamme* per *tan*, the profit being about 15 *yen* if sold in the raw state and about 25 *yen* if sold in manufactured state. The quotation of the tea farms is about 60 *yen* per *tan* in Soraku and Tsuzuki districts, but in the vicinity of Kohata, the centre of the favourite "Gyokuro" (Pearly Dew), the average price rises to five or six hundred *yen*, the highest being 800 *yen* and the lowest 200 *yen*.—*Japan Tiwes*, May 19.

The following are some further items about tea industry in Uji:—A factory generally contains firing-furnaces ranging from 15 to 20 but sometimes as many as 80. One man manufactures one *kwamwe* (a little over 8½ lb. Av. of tea out of five *kwamme* of raw leaves. The wages of these labourers are 30 *sen* per day with board. It takes a female tea-gatherer a day and a half to pick enough leaves for a male tea-firer to manufacture in a day. The daily wages of female labourers are 15 *sen*, average. Advances are made to these females as early as January, and when the season comes elderly women bring a

bevy of girls and inspect their work. The girls all put on their heads white *tanugui*, the wear *taski*, tbe colour of which differs according to the age, those below 20 be red and those over 20 light blue. A new kind of tea called *tancha* (a lump of inferior tea pressed and hardened, and to be used by shaving) was recently originated. About 6,000 catties of this tea was manufactured last year principally for exportation to Vladivostock. The result being satisfactory, it is intended to increase the manufacture of htis kind of tea.—*Japan Times*, May 21.

AGRICULTURAL EDUCATION.

Those who have followed even cursorily the correspondence which from time to time breaks out in the daily and weekly press on technical education, must have become aware of prodigious gulf that lies between the ideas of foreign nations and our own on the subject of scientific knowledge. With us it is scarcely suggested, far less taught, in schools; it is just barely recognised in our Universities; in ordinary society any allution to it is counted pedantic, in the Legislature it only appears when some restriction is to be placed on its exercise; and in the executive departments it only finds place for one chemist in the Custom House, and another in the Excise. As a consequence, or an illustration, of this universal neglect there is scarcely a single manufacturer who resort to scientific research as a method of advancing his interests, and the small amount of knowledge which is actually employed is almost limited to the purposes of detecting adulteration is materials purchased, and calculating proportions of ingredients in compounds. But abroad, whether we look to large States, such as France or Germany, or to small ones such as Denmark and Switzerland, the case is as different as day from night. The common schools teach every child the elements of the knowledge of things around him, that is of physics and chemistry. The Universities have large endowments for scientific training and research. Institutions exist for giving the instruction requisite in every special department of industry. Manufacturers recognise that there is profit to be made not only in routine methods, but in new discoveries and improved processes and they pay high salaries to men engaged in what to us seem the unpractical and absurd idea of merely discovering new truth. But the consequence is that they drive us out of the foreign markets and invade our own, that their progress treads everywhere on our heels, even if it does not leave us behind; and that though the volume of their transactions may not yet surpass ours, they are advancing in a far more rapid ratio.

In the department of agriculture the same difference of system is apparent. In Great Britain the State does absolutely nothing for it. Abroad, for the last half-century at least, the State has maintained numberless establishments for learning and for teaching the scientific facts on which agriculture in all its branches depends. The knowledge thus gradually built up is disseminated by reports and journals. In America the same system has been adopted; every several State has its experimental station, which publishes an annual "bulletin" of results ascertained by its scientific, that is to say, its exact, inquiries. Very lately we have seen the statement, which may perhaps not be precisely true, but which, at least, shows the mental attitude of American farmers, that within a radius of twenty miles of each State station there is no agricultural depression, so much have its object-lessons aided those within its sphere of influence to adapt themselves to their new conditions. For those who are more distant there are, besides the bulletins issued, not a few books in which the latest practical results of American and German scientific investigations are embodied.

It is a further remarkable fact that not only in such foreign sources is the information on scientific agriculture at present to be exclusively found, but that till lately it could be obtained only by ordering the books from the countries in which they were published. The American works were, of course, written in English, but no English bookseller thought them worth showing to his customers. Armsby and Stewart two household names on the other side of the Atlantic as teachers of the principles of feeding stock, were utterly unknown here. The German works were not even translated, nor could any reference to them be found except in the excellent little manual of "Agricultural Chemistry," by Mr. Warington, now Sibthorpian Professor of Agriculture at Oxford. But this lamentable hiatus in our literature has been partly filled by the publication last year of a translation, by Mr. Herbert Cousins, of Professor Wolff's treatise on the "Rational Feeding of Farm Animals." Still more recently we have a translation, by Dr. Aitken and Mr. Wright, of Professor Fleischmann's *Book of the Dairy*. At last, then, the English farmer has the access, in these two works, to the soundest and best guidance in the two departments which they cover. If he will only read and digest them, he will not merely gain knowledge, but direct money profit as well; for what they contain is the knowledge how to reach the results he seeks with the least expense at the smallest risk, and to the highest advantage.

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We are, indeed, perfectly aware that the excellent works we have recommended will, to a large extent be beyond the comprehension of the great majorite of those who, as agriculturists, have a direct interest in their subjects. But this melancholy truth only makes stronger the case for giving serious consideration to the treatment of scientific education in this country. If farmers and landlords are as a rule so ignorant of the mere elements of science that they cannot understand books which treat of the business jo their lives, it is obvious that there is something radically wrong in the education which they receive. And if they and the Government, which is in a great degree subject to their influence, are unable to see the importance of coming up to a level with the technical knowledge enjoyed by their foreign rivals in every department of industry, it is absolutely certain that year by year they will find themselves further outstripped in the race of competition, in which victory, by Nature's inevitable law, falls to those who are able most deeply to penetrate her secrets.—The Melbourne *Leader*.

THE "AGRICULTURAL GAZETTE" OF NEW SOUTH WALES.

We have received from the S.N. Wales Govt. Printer a copy of this *Agricultural Gazette* for April. The Chemist, Mr. F. B. Guthrie, has a valuable article on the fertilising value of bonedust, and the information given should be of interest to those who go in for that manure. Dr. Cobb's contribution is a long series of letters on subjects embracing Wheat—varieties and nomenclature—Diseases (smuts bunt; white-heads); Maize Rust, Disease of the Plum Apple (bitter pit, canker); Potato (wet rot, scab) Orange (Melanose [?] mal di goma, verrucosis, die, back, blackspot); Peach and Nectarine (peach freckle, curl, the crease in peaches); The Gall-worm; Disease of the Grape; Onion; Timber Diseases; Preparations and Use of Bordeaux Mixture; Compound Mixtures; Drying Fruit for Home Consumption.

All the diseases, &c., are illustrated by means of excellent blocks; and as the Doctor has been careful to express his ideas in the plainest possible language the contribution is of extreme interest, and should be carefully read by all engaged in wheat-culture and the treatment of diseases of orchard and farm crops. A chapter on the diseases of timber is intructive, while for the information of those who desire to try the various sprays recommended, the Doctor's suggestions concerning the preparation of the mixture should prove useful. Those engaged in fruit-drying should note the remarks concerning the use of sulphur fumes. Mr. W. L. Boyce, of Lochinvar, recounts his experience of feeding cattle on boiled prickly-pear. The poultry expert, Mr. McCue, takes up cudgels on behalf of pure strains of table and laying fowls. Mr. Allen, the new fruit expert, has some notes for the guidance of persons planting orchards, and there are many other interesting items.

THE EAST INDIAN AND CEYLON TEA COMPANY, LIMITED.

The following is from the Report presented at the second ordinary general meeting of the company held on Tuesday last :—

The accounts were duly closed up to November 30th, 1895, from the various dates the company obtained possession, and the bulk of the profits were utilised in payment of interest to the vendors as provided in the prospectus, the balance being carried over to the company's credit as stated in the circular issued to shareholders November 30th last. For the year from December 1st, 1895, to November 30th last the accounts have not just been closed and audited. The crop amounted to 1,529,384 lb., and this has realised £48,576 3s. 2d., or an average of almost 7⅝d per lb.

The expenditure on the bearing estate amounted to £36,411 2s 9d, and the profit of the year's working was £12,656 16s 2d. The amount at credit of profit and loss account after crediting the balance carried over from last year and deducting income-tax, is £12,762 9s., from which dividends have been paid on the preference shares to November 30, 1896, amounting to £5,103 5s 2d, as we as an interim dividend on the ordinary shares of £2,550. This leaves a balance £5,109 3s 10d. The directors recommend that a further dividend at rate of 4 per cent making 7 per cent for the year, be now distributed to the ordinary shareholders, and that the balance of £1,709 3s 10d be carried forward. Sixty-nine acres were planted on the old estates during the past year, and the cost of this as well as of the upkeep of 67 acres planted in the previous year, amounting in all to over £900, has been charged to revenue. In addition to the above-mentioned expenditure it will be seen from the accounts that £4,853 17s 3d has been spent on developing the Hapugastenne estate, and has been charged to block. The properties in India and the bearing properties in Ceylon have been duly conveyed to the company, and legal transfer of the lands recently acquired in Ceylon is expected to be completed in the course of the next few weeks. The reports from the company's properties in India are satisfactory, and, as indicated in the prospectus, arrangements have been made for their more economic management. The European staff on the company's estates is an excellent one. Recent reports on the company's bearing estates in Ceylon are most encouraging, and by the higher system of cultivation introduced, and the judicious application of manures, an increased yield may be confidently expected. In order to ensure more economical and efficient working, arrangements are being made for the acquisition of a site where water power will be available for a new factory at Mahaousa. The directors have recently purchased 421 acres of land in Ceylon at R36 per acre, and they have sold a small outlying block of 444 acres at R75 per acre.

The exchange of lands with the Government has been carried through, and the directors are glad to be able to report that the company stands possessed of 4,770 acres, or thereabouts, of fine land in Ceylon over and above the old bearing estates, the judicious development of which will be of the very greatest value to the company. During the past year 270 acres of tea have been planted there, and a further extension of 1,300 acres is being made in 1897. Thanks to the energy and ability of their colleague, Mr. Davidson, and the superintendent, Mr. Imray, the progress of this considerable work is well advanced, and is every way satisfactory. To meet the heavy expenditure in connection with these extensions it will be necessaryto issue balance ofthe the capital—viz., £30,000. From reports received the directors think it probable that to do justice to this fine property it will be desirable to increase the capital of the company and perhaps to amalgamate, so far as concerns these new lands, with a neighbouring proprietor. These important questions are now under the careful consideration of the board of directors, and after consulting personally with Mr. Davidson, they will bring a definite proposal before the shareholders. The directors are alive to the importance of also cultivating products other than tea, such as rubber, Liberian coffee, fibres, etc, the experiments on a limited scale have been sanctioned and are now being made. They are also encourging as much as possible all practical efforts to open up and extend new markets for tea, and they are glad to report that 331,199 lb of the company's 1896 were crop disposed of in America and Canada.

The second ordinary general meeting of the shareholders of the East India and Ceylon Tea Company, Limited, was held on Tuesday at Winchester House, Mr. S. Boulnois presiding. Mr. W. T. Jones having read the notice convening the meeting,

The CHAIRMAN said: Before asking you to adopt the motion for the passing of the report and accounts, I wish to explain why I am somewhat unexpectedly called upon to preside today, and to occupy the position of our worthy chairman, Mr. P. R. Buchanan. I shall read to you the letter which I have received from him, and which will be of interest to all the shareholders. It is as follows:—"My dear Boulnois,—As the report of the East India and Ceylon Company is so good, and as everything is in a most satisfactory and promising condition, I have no hesitation in asking to be excused from presiding at the annual general meeting. As you know, I am in the hands of the oculists, and the rapidly increasing failure of eyesight precludes me, except under very extraordinary circumstances, from taking part in any public meeting. If we had anything disagreeable to communicate to the shareholders I would have made a point of being present, but in the present satisfactory circumstances I feel I may honourably ask to be excused. You are, I think, aware that the oculists hope to perform a fairly successful operation, but it will be a long business, and the result can scarcely be known before the end of the year.—Believe me, &c., Pat. R. Buchanan." That letter, Mr. Boulnois continued, speaks for itself, and I am sure you will all cordially agree with me that we are exceedingly sorry to hear of the affliction of our chairman. Now, as to the report, which I presume you will take as read, I shall be very brief in my remarks, because we have made it as exhaustive as possible; and, moreover, we have present with us our colleague, Mr. Davidson, from Ceylon, who will be able to give you much more information regarding our properties than I can be expected to do. In paragraph 2 you notice that the accounts were duly closed up to November 30, 1895, from the various dates the company obtained possession, and the bulk of the profits were utilised in payment of interest to the vendors as provided in the prospectus, the balance being carried over to the company's credit as stated in the circular issued to the shareholders November 30 last. It may interest you to know that the total amount of balance was £672 17s 9d, of which sum £326 19s 9d was not available for distribution. For some reason our lawyers said we must not distribute that; that as a capital account we could not distribute it, and therefore we carried that to the sale of land and purchase account—to the credit of the purchase account of the properties. £345 18s, the balance, was brought to the credit of the profit and loss account. Going a little further we find a satisfactory feature of the account is that we have charged to revenue 69 acres that were newly planted out on the old estates during the past year, and we have also charged the upkeep on the old estates, for the young tea on the same estates, machinery, buildings, coolies, &c. By this we may estimate at least £1,200 have been charged to revenue account that under certain circumstances might have been charged to the block account or capital account, but we thought it more prudent to charge it to revenue. I will not touch upon the matters as to our Blackwater and Mahaousa estates, because Mr. Davidson is here and

will tell you all about them, but there is an item in the accounts I have been asked about, and it is a point which anyone not conversant with the way in which tea accounts are kept may be at a loss to understand; therefore I shall explain it. You will find the item "Tea unsold on November 30." That has since realised £18,758. That is the amount we now know that it has realised, but at November 30 it was, of course, not sold. We have now at May 14 that amount in money instead of tea. There is another small amount we had to estimate subsequent to May 14. The small amount then remaining unsold had to be estimated, and was taken at £5,803. This has now all been sold, and has exceeded the estimate by £61, so that we came pretty near what it was likely to bring. The report goes on to refer to the expenditure on opening the new lands

The balance of our capital, £30,000, will very shortly be wanted, and we shall propose to offer the shares, pro râta, to the existing shareholders. We take it that will be the fairest way of doing it, though really it is not a very large amount. Coming now to the question of amalgamation with a neighbouring proprietor, we only foreshadow that in the report, and anything that I might say now would, perhaps, not be to our interest. However, I may tell you that various methods for working the new lands are under the consideration of the directors, but in the present stage of the negotiations it would be highly undesirable in the interests of the company to say any more on the subject than we do in the report; but as soon as we are in a position to lay a scheme before you we shall call you together to discuss the whole subject. The amalgamation, you clearly understand, refers to the new lands; the old property and estates will continue as before in their present state. To open up 5,000 acres of land is rather a tall order, and that cannot be done without more money. As to the prospects of the current season, I may say they are very good. You will be glad to hear that the quantity of tea made to the 15th of this month is about 40,000lb ahead of the same period of last year; but larger production may mean lower prices, and therefore it will not be well to attach too much importance to this fact. At the same time we see no reason to expect that the current season's results should not at least be as good, if not better, than last year's and for this reason, among others, that the present rate of exchange, which was against us nearly all through last season, has now turned more in our favour. I now beg to move: "That the directors' report and the accounts having been circulated, the same be adopted, and the dividend declared on the ordinary shares at the rate of 4 per cent., making 7 per cent. per annum for the year, be paid, and that the same be made payable on the 31st inst."

Mr. L. DAVIDSON, in seconding the resolution, said, he desired to make a few remarks on the general working of the estates. The cultivation of the Blackwater and Mahausa old estates had been somewhat altered recently. They were now going in for manuring, which, in his opinion, would produce more profit to the shareholders. The increase of crops next year would no doubt be very large, and when they got manure in regular rotation they might expect greater returns in coming seasons. The Government lands that they acquired last year were, he considered, the most important possessions of the company. They were aware that they bought about 2,700 acres of land from the heirs of a gentleman deceased. The Government were desirous of acquiring one block of that land, amounting to 1,200 acres, the reason being that it lay in the heart of a large block in the reserve forest, and that it also affected the rainfall of that side of the country, which was one of the driest parts of Ceylon. He approached the Government Commissioner, and they arranged to make an exchange, the one portion of the bargain being suitable to Government purposes, and the other to the advantage of this company. Plans of these properties had been sent home from Ceylon recently, and any of the shareholders would from them understand clearly the position of affairs. The land they got made a large block of 5,000 acres, almost without a break. It lay along a valley, through which they hoped in the near future to construct a cart road or tramway, which would practically tap the estates all the way through, and thus give economy in transport. He understood the directors would very shortly come to a decision regarding this road, probably joining with other companies in the expense of its formation. The total cost would not be large. The land in question was firstclass in character, and when fully developed not only would it be the largest in Ceylon, but one of the finest properties at a medium elevation. As to the staff in Ceylon, he might say they worked splendidly, and he had every reason to be proud of them.

The resolution was agreed to unanimously.

On the motion of Mr. C. T. RICHARDSON, seconded by Mr. F. G. PRIDEAUX, Messrs. Boulnois and Bryans were re-elected directors.

Messrs. Woodman, Tulloch, and Edds were reappointed auditors, on the motion of Mr. H. A. Hadrill, seconded by Mr. J. W. SCOTT, and the meeting was brought to a close with a vote of thanks to the Chairman and Directors.—*H. and C. Mail*, May 28.

OTHER TEA COMPANIES.

SOUTHERN INDIAN TEA ESTATES.—Dividend of 5 per cent. making a total of 10 per cent. for the year. As a large area of valuable land belonging to the Company is at present unproductive, the directors consider it desirable that some of it should be quickly brought under cultivation, and for this purpose it will be necessary to issue this year 300 new shares—say 200 6 per cent. preference and 100 ordinary shares, which it is proposed be first offered to the shareholders *pro râta* at 10*l*. 10*s*. per share.

TINGRI TEA COMPANY, (LIMITED).—The report for 1896 shows that the profit on the seasons operations amounted to, including 161*l*. brought forward, 4,220*l*. The directors recommend a dividend of 6 per cent., carrying forward 830*l*. Owing to more unfavourable rates of exchange for remittances to India, the increased cost under this head amounts to 729*l*. In consequence of the high prices ruling for rice, the importation for the consumption of the labour force has been carried on at a loss of 492*l*.

RAJMAI TEA COMPANY, (LIMITED).—The report for 1896 states that the profit on the season amounted to 3,463*l*. A balance of 5,410*l*. was brought forward. The directors recommend a dividend of 5 per cent., making, with the interim dividend paid in November, 10 per cent. for the year, leaving 4,773*l*. to be carried forward. The negotiations for the purchase of the Borbarrie Estate were satisfactorily concluded.

BRITISH INDIA TEA COMPANY, (LIMITED).—The annual report states that the net profit amounted to 5,362*l*. The directors propose to declare a dividend of 5 per cent. for the year on the ordinary shares, and to carry 2,098*l*. forward.

JHANZIE TEA.—Final dividend of 6 per cent., making 10 per cent. for the year, which will absorb 5,010*l*., carrying forward 1,069*l*.

MAJULI TEA.—Account for past year show profit on season, 4,976*l*.; balance brought forward, 2,428*l*. The directors recommend a dividend of 5 per cent., with a balance carried forward of 2,606*l*. Although the crop of the past season failed to reach the manager's estimate, the total exceeded that of the previous season by 68,066*l*.

DARJEELING CONSOLIDATED TEA.—The ordinary general meeting of the Company was held on May 17th at Winchester House. Sir Alexander Wilson presided, and said that he hoped the shareholders would consider the results of the past year as satisfactory under the circumstances, considering the exceedingly poor seasons that most of the Darjeeling companies had experienced. The board proposed a dividend on the ordinary shares at the rate of 4*s*. 2*d*. per share. The report was adopted, and the dividend approved.

OUVAH COFFEE COMPANY, LIMITED.

CAAPTAL £100,000 IN 10,000 SHARES OF £10 EACH.

Directors Alfred Brown, Managing Director. L. Famin, Norman Stewart, P. C. Oswald.

Report to be presented to the second Ordinary General Meeting of the Company, to be held at No. 5, Dowgate Hill, London, on Friday, the 4th day of June, 1897, at 12 o'clock noon.

The Company, as Shareholders were informed at the Statutory Meeting held on 17th November, 1896, has been satisfactorily reconstructed, with a new Memorandum and Articles of Association, containing the additional powers required for the conduct of the Company's business.

The following Annual Accounts are now presented to Shareholders, viz.:—Profit and Loss Account for Crop 1895-6, Balance-sheet made up to 31st March 1897.

CROP 1895-6

In last year's Report it was stated that the Coffee Crop of the above season would be small, and it will be seen that the actual weight sold in London amounted to 376 cwt. 3 qrs. 13 lbs.

The proceeds amounted to £1,736 13s 3d, giving an average of 92s 2d per cwt., against an average of 93s 5d, obtained for the previous crop. Coffee sold in Ceylon realized £22 18s 11d.

The crop of Tea was estimated at 606,000 lbs., and the actual weight sold from the Company's own estates was 570,360 lb. Besides this 135,608 lb. of Tea manufactured from leaf bought from neighbouring estates were sold.

The value of all Tea sold was £26,907 5s 11d, at an average of 9·15d per lb., as compared with 9·08d. for the previous season.

Cocoa, weighing 141 cwt. 0 qrs. 3 lb. realized £330 16s 7d, the average selling price being 46s 11d per cwt. against 48s 9d for the former year's crop.

It will thus be seen that the total value of all produce sold amounted to £28,997 14s. 8d.

The total Expenditure for the year in Ceylon and London amounted to £23,982 10s. 8d., and deducting this from the value of the Produce, a profit is shewn on the season's working of £5,015 4s. 0d. To this has to be added the sum of £1,151 1s. 9d., being the undivided profit transferred from the old Company, giving a total of £6,166 5s. 9d. at the credit of Profit and Loss Account.

An Interim dividend of 3 per cent. on the capital of the Company was paid on the 7th November last, which absorbed £3,000 of the above-named sum, and the Directors now recommend that £3,000 be applied to the payment of a further dividend of 3 per cent., making 6 per cent. for the year, and that the balance of £166 5. 9d. be carried forward to next Account.

The smaller profit secured as compared with last year is entirely due to the shrinkage in the Coffee crop, the proceeds from the sale of this product having amounted to only £1,759 12s. 2d., against £5,796 6s. 11d. for the preceding year.

The Coffee crop for 1896-97 will again be a very small one. Reports on the present condition of the Coffee bushes are at the moment more favourable, but no reliance can be placed on this crop as a source of revenue.

The estimated Tea crop was not fully secured, but the satisfactory yield of 400 lbs. per acre from the whole area plucked, inclusive of that only in partial bearing, was obtained.

The Tea sold well at a small advance on the price obtained for the previous year's crop, notwithstanding that the average for all Ceylon Tea on the London market declined ⅜d. per lb. during 1896.

Since the date of last Report a further 150 acres of Tea have been planted, bringing the total area under that cultivation up to 2,007 acres as detailed below. Further plantings will be limited to replacing Coffee with Tea, as the former has to be abandoned.

The Tea crop for 1896-97 is estimated at 650 000 lb. of made Tea. So far pluckings have been heavy and crop prospects are good.

TEA.		Acres.
Over 5 years old	..	1,375
Planted November/December ..	1892	45
"	93	125
"	94	153
"	95	159
"	96	150
Area under Tea ..	..	2,007
Area under Coffee ..	..	565
Area under Fuel ..	..	346
Forest Patana and Waste	..	501
Total Area	..	3,419

Mr. P. C. Oswald, a Member of the Board, retires on this occasion, and, being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election.

By order, J. Alec Roberts, Secretary.

May 26th, 1897.

SPRING VALLEY COFFEE COMPANY, LIMITED.

Report to be presented to the Thirty-second Ordinary General Meeting of the Company to be held at No. 5, Dowgate Hill, London, on Friday, the 4th day of June, 1897, at 12·45 o'clock p.m.

The following annual accounts are now presented to Shareholders, viz.:—

Profit and loss accounts for crop 1895-6.

Balance Sheet made up to 31st Earch, 1897.

CROP 1895-6.

In last year's Report Shareholders were informed that the coffee crop of the above season would be very small, and it will be seen that the actual weight sold in London amounted to 298 cwts. 1 qr. 12 lb. This crop, inclusive of clean and refuse coffee sold in Ceylon, realised £1,353 4s. 1d., the average selling price being 90s. 2d., as compared with 91s. 10d. per cwt. obtained for crop 1894-5.

The yield of Tea amounted to 250,171 lbs., the estimate in last Report being 280,000 lbs., and this, together with 74,350 lbs., brought from neighbouring estates and manufactured at Spring Valley, sold for £12,284 10s. 6d., or an average of 9·08d. per lb., the averege selling price last year being 9·34d. per lb.

The total proceeds from the sale of produce amounted to £13,637 14s. 7d. The total expenditure in Ceylon and London, including outlay on planting 145 acres tea and maintaining a large area of young tea not yet yielding crop, amounted to £14,077 12s. 4d. Profit and Loss Account has therefore to be debited with a sum of £439 17s. 9d., being expenditure in excess of the yrar's revenue.

The sum of £2,594 17s 2d was brought forward from last year, so that after making provision for the above amount the balance at the credid of profit and loss is £2,154 19s 5d, and provided that Shareholders elect to adopt the proposals to be submitted to them at the Extraordinary General Meeting to be held immediately before the Annual Meeting, the Directors recommend that a dividend of 2½ per cent. be now declared for the year, leaving £154 19s 5d to be carried forward to next account.

The revenue from coffee, as stated above, only amounted to £1,353 4s 1d., against £7,616 3s. 11d. for the previous year. The estimate for the current season is 200 cwts., and it is feared that all hopes of profit from tbis cultivation must be finally abandoned.

The Tea Crop did not come up to expectations, 250,171 lbs. having been secured, against an estimated crop of 280,000 lb. Prospects from this cultivation, however, remain good, and this year's crop, estimated at 311,000 lb. is likely to be considerably exceeded.

Since the date of last Report, 159 acres of unproductive coffee land have been planted up in Tea, bringing the area under that cultivation up to 1,520 acres as follows:—

TEA.			Acres.
Over 5 years old	..	..	741
Planted November/December	..	1892	53
"	..	93	243
"	..	94	179
"	..	95	145
"	..	96	159
Area under Tea	..	..	1,520
Area under Coffee	..	..	406
Area under Fuel	..	..	56
Forest Patana and Waste	..	..	271
Total Area	..		2,253

The Directors desire to call the attention of Shareholders to the accompanying circular and notice of an Ext aordinary General Meeting for the purpose of considering and, if thought fit, passing proposals for the more rapid development of the Company's pro perty a a Tea Estate.

Mr. N. Stewart, a member of the Board, retires on this occasion, and, being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election.

By order, J. ALEC ROBERTS, Secretary.

May 26th, 1897.

PRODUCE AND PLANTING.

PARLIAMENT AND THE TEA DUTY.—The discussion on the Finance Bill in the House of Commons last week gave rise to further talk about the tea duty. In the course of the debate Sir William Harcourt, referring to the manner in which the Chancellor of the Exchequer had dealt with the surplus at his disposal, expressed his opinion that the indirect taxation of the country ought to be further reduced. For his own part, he said, if he had £2,600,000 to dispose of he would take twopence off the tea duty, thus reducing it to one half. If Sir William Harcourt should ever be in the position to carry out this good intention he will, we hope. bear this statement in mind.

THE ATTEMPT TO REVIVE THE CHINA TEA TRADE.—Now, according to the prophets, China won't be long. The opinion passed by experts on this side who have been asked to taste and see the machine-made teas sent over here is said to be so favourable that China teamen are in a great state of jubilation in consequence. One firm of Edinburgh tea dealers say: "We have pleasure in reporting to you on the sample (machine-made, isn't it?) China tea (new method) same as was sent to us by another firm of China brokers. We will say to you, much as we said to them, that were we China merchants we should certainly see that all the stuff we shipped should be made as this is made, instead of as all China has been treated for—how many years past shall we say? If John Chinaman sends home all his tea as strong as this, he will very soon give a good account of himself against the overwhelming flood from India and Ceylon, because there is in this sample much more of what the public consider the style and taste of tea than in much of the woody tasted stuff that comes from many of the Indian estates especially." That "machine-made, isn't it?" looks as if the Edinburgh people were rather doubtful on the subject. From the fervent hopes and sanguine views expressed about the Celestial teas, and the remark about the "woody-tasted stuff that comes from many of the Indian estates especially," it may be inferred that the Edinburgh firm are by no means averse to the revival of the China tea trade. The verdict thus passed is commented on as follows by the *North China Daily News*, which says: "If ordinary third crop Pakling leaf is susceptible of such improvement as is recorded in the letter of Messrs. Melrose, what possibilities are in store for teas prepared according to the 'new method' from first crop leaf from the leading districts in Yangtze Valley? It is to be observed that it is not for the resemblance to Ceylon and Indian teas that Messrs. Melrose view so favourably the samples submitted to them, but because they are considered to have the style and taste of tea. It is to be hoped that the Chamber of Commerce will not confine the observations they are preparing to publish to the tariff question alone, but will use their influence towards getting Sir Claude MacDonald, the British Minister to urge the Tsungli Yamen to take up the question of making Chinese congou according to the methods that have rendered Ceylon tea so popular." It seems from the Indian and Ceylon planters' point of view at least, rather rough on them that a British Minister should be urged to encourage Chinese rivals to imitate their successful methods.

CHINA AND TEA MACHINERY.—The effort to place the production of Chinese tea on a better footing was referred to at a meeting of the Royal Botanic Society of London held on Saturday. A paper was read by Dr. Robert Boxall, who has travelled in the tea-producing districts of China, and was listened to with marked interest by a large attendance of Fellows, among whom were the Duke of Rutland and the Marquis of Bute. Dr. Boxall illustrated his paper with a fine collection of lantern slides, prepared principally from Chinese paintings, and exhibiting the various processes of planting the tea shrub, and the cultivation, gathering, and preparation of the leaf for the market. From the time of the first imports of tea from India the quantity of China tea brought into this country has diminished year by year, and it now seems to have dawned upon the Chinaman that unless he brings himself more into line with his competitors the British market will soon be all but closed to him. He is, therefore, importing large quantities of machinery, and great preparations are being made to produce teas of such fine character as will once more gain them something more than a foothold in the British market.

TEA IN THE UNITED STATES AND CANADA.—The tea market has been surprised by the fact that an expected duty of 5c. per lb. has not been included in the Canadian tariff, and still more by the announcement that the United States Senate Committee has included a duty of 10c. per lb. on tea until January 1st, 1900

COOLIE LABOUR AND THE STRAITS SETTLEMENTS.—The Penang and Province Wellesley planters do not like the Immigration Bill at all. This Bill abolishes the punishment of such Indian immigrants as arrive under advances and refuse to sign labour contracts. The matter arises through the Indian Government's proposing to obstruct emigration unless the penalties are abolished. The planters do not desire to recover from the coolies the money advanced for their passage, but say that they cannot make advances unless the coolies, on arriving, are bound to sign contracts at the agreed statue labour rates. The planters have resolved to address a memorial to Mr. Chamberlain.—*H. and C. Mail*, May 28.

COONOOR, June 10.—The S. W. monsoon currents have set in but no high winds experienced yet, but temperature fallen greatly. Leaf-disease touching up the coffee here and there. Tea still flushing grandly. Has been a marvellous year for tea, and few, if any, of the totes have managed to save the whole of the flush, owing to scarcity of pluckers. Labour fairly abundant on the whole, but advances in some cases have been raised to 5/8 per head: a rise of 8 as. I saw a specimen of *Ceylon Erythrina* lithosperma the other day $3\frac{1}{2}$ feet high, at 6,000 feet elevation, but in heavily manured soil.—"Planting Opinion."

FACTS ABOUT TEA.

We have a strong appeal from London to the tea planters of Ceylon to drop "broken" teas —"our average now," says one critic, "would be as high as two years ago but for the fall in *broken* pekoes."

Messrs. Wm. Jas. & H. Thompson send us their annual Tea Review, dated 9th June, which we hope to reproduce in full tomorrow—meantime mentioning that these eminent brokers take an encouraging view of the situation and prospects, pointing out how great is the room for an increase of consumption of tea per head in the United States (rate now only 1½ lb. per head against 5¾ lb. for U. Kingdom, Australasia, and Canada) and still more in Russia, Germany, and the rest of the Continent. And why they ask (as we have often done) should the commoner teas not be drunk universally by the people of India (and Ceylon), as tea is by the Chinese and Japanese? Why not indeed, save for the people's poverty. But at least most of the money invested in arrack might well be transferred to tea, if proper encouragement and opportunities were afforded. Messrs. Thompson dwell on the growing enquiry for *fine-flavoured* tea, and how this must tell in favour of high Ceylons. Finally we read :—

The needs of the day are to bring tea rapidly to market; at regular intervals; in as large breaks as can be made; sub-divided into the four or five recognized grades; to break the leaf as little as possible by mechanical process; and to maintain the distinctive character of the garden's produce.

As to average prices, Messrs. Thompson find for Ceylon tea in London as follows :—

Showing the progress of the Ceylon Tea Trade in London:—

Season ending 31st May	Imported lb.	Sold in Auction pkgs.	Average price per lb.
1887	8 million	124,000	1s 1⅓d
1892	64 ,,	790,000	9¼d
1897	93 ,,	1,095,000	8d

While for the North India districts, the following results are worked out :—

Returns for	Acreage.	Quantity. lb.	Per Acre.	Average Price per lb. d.
1895-96 ..	101,750	45,850,000	450	9·55
1894-95 ..	97,120	42,284,000	435	10·55
1893-94 ..	91,300	40,083,000	439	9.65
1892-93 ..	85,780	34,900,000	406	11·30

It is interesting to learn from Messrs Gow, Wilson & Stanton that the Indian Tea industry is generally dated from 1837—the year in which our coffee-planting on the West Indian system in Ceylon first took its rise. Also that the tea consumption of the importing countries of the world equals 500 million lb.; while India and Ceylon produce not much more than half this as yet. We have a good deal of room for expansion therefore, if only we can drive out China's and Japan's. We have half conquered Australasia; but surely we (India and Ceylon—or Ceylon by itself) ought to complete the conquest: In North America, British-grown teas only made up *one-tenth* of the consumption last year: immense room here for expansion; and so also on the Continent of Europe. As to the improvement of our teas and the application of Chemistry, we think the larger and more prosperous tea concerns should lead the way! a competent analytical chemist added to the staff of one of our largest factories ought to be a profitable investment, and the cost of a three years' engagement not too great to be faced, especially as he should be able to advise in other directions than in the fermentation and better preparation of tea.

PLANTING IN THE CENTRAL PROVINCE OF CEYLON.

NEW AREAS OF CULTIVATION.

I am indebted to the Secretary of the Northern Districts Planters' Association for the following observations and figures regarding the progress of European tea and cacao enterprise in this district :—

"*Tea.*—The area brought under new cultivation in Matale East is very small. In Matale West it is fair, but Matale North is putting a large area into tea, and promises to double its acreage in a few years' time. The yield of the three districts was fair, averaging about 460 lb. per acre, but the rupee prices were low owing to high exchange, and in spite of a favourable crop most estates show a reduction of 20 to 25 per cent. in their profits.

"Labour was more abundant than in most districts, but more estates were nevertheless short of requirements.

"*Cacao.*—The extension of this product has entirely ceased for three reasons :—(1) Lowness of price; (2) expense of protecting it from theft; (3) a disease which has latterly appeared and which no one understands. The disease kills the mature trees, and is not to be checked by the most careful system of cutting out and burning. The more highly cultivated the cacao is, the more liable it seems to attack, and the disease kills so quickly that the leaves have not time to fall. It is unlikely that there will be any extension of cacao until a remedy has been found for this disease No statistics as to crop were collected."

As regards native enterprise, the extent brought under cultivation during 1896 may be roughly put down at about 500 acres, chiefly in cacao and coconuts, and nearly all in Matale South. The area under paddy cultivation does not appear to have been added to during the year, but there are no signs of any decrease consequent on the abolition of the paddy tax

THE "CRYPTOGAMIST" AND CACAO.

We ought, in dealing with the Governor's speech last week, to have noticed the fact of the scientific gentleman, who is so difficult to name after dinner, having been amongst us before, and that, at an Old Colonists' gathering he should seem like an "old chum." When Professor Marshall Ward came to Ceylon to investigate the coffee-leaf fungus, he necessarily arrived amongst us bearing what in Scotland would be called a "long-nebbed" title. His professional cognomen, we remember, struck awe into the hearts of many, and excited the imagination of some. One story, current at the time, was that an old planter who seldom left his estate, having failed to get any kind of satisfaction as to what a "Cryptogamist" was like or what he did, determined to find out for himself. He journeyed into Kandy and out to Peradeniya, on this special errand, and went back again in high indignation that so small a man as Professor Marshall Ward should be permitted to assume such a high-sounding, not to say awe-inspiring, title! Since 1881, however, Professor Marshall Ward has climbed very high, indeed, in the esteem of his scientific brethren through the continuously valuable work he has done. He is now one of the Professors at Cambridge University and is probably regarded as a "Cryptogamist" or "Fungologist" of the first rank—indeed, as a Botanical authority generally he has attained to that position.

To return to our cacao friends, we are assured by one of them that although there may be few in the profession (Cryptogamic) and the name may be fascinating, cacao-planters would be very glad to see one now at work, whatever his height in inches might be, or however much he might embarrass the language of the diner-out. On the other hand, we have other cacao estate proprietors who regard the existing troubles without anxiety. One such writes to us:—"The Helopeltis scare was, I consider, more serious than the present disease; and therefore, I think we may hope for an improvement in cacao prospects during the next few months."—It is becoming evident that proprietors in the more favoured districts, and who depend chiefly on the "Forastero" variety have not much to fear from the present pest or pests; and the older the trees grow, the less liable they will become to such attacks. Nevertheless, we trust the fullest scientific investigation may shortly take place, whether by Cryptogamist, Entomologist, or Economic Botanist—or all three together.

THE EADELLA ESTATES COMPANY,

REPORT OF THE DIRECTORS.

The following report was submitted at the last meeting in Kandy:—

The directors beg to submit to the shareholders their report for the year ending the 30th April, 1897, together with a statement of accounts and balance sheet for that period. The estates have yielded 94,560 lb. of tea, which quantity includes 2,681 lb. of tea made from purchased leaf. This shows a decrease upon the previous year's returns of 16,407 lb. This reduction is owing to the abnormal season, the North-East monsoon having been unusually wet for 3 months and followed by hard dry showerless weather. The prices realized for the teas were on an average 7 cents per lb. less than last year's, which in a large measure is accounted for by the lower rates of tea and higher exchange.

Cocoa.—There were secured 102 cwt. as against 145 cwt. last year. The wet weather of the autumn had the effect of blacking off the pods, otherwise the estimate would have been realized, as the pest prevailing in other districts is absent here.

Liberian Coffee reached the estimated quantity.

The balance or profit and loss account is R5,997·58, and the directors do not see their way to recommend declaring a larger dividend than 3 per cent. and to carry forward R1,197·58. The directors have to point out that expenditure has exceeded the authorized capital by about R9,000, and about R5,500 will be required for permanent works in 1897-98, so that it becomes necessary to provide R14,500 by increase of capital, or loan, as shareholders may determine at the ensuing general meeting. As a large amount has now been written off for depreciation on Factory machinery, it is considered that 5 per cent. this year will be sufficient.

The directors retiring from office are Messrs. W D. Gibbon and E. S. Fox, and, being eligible, Mr Gibbon offers himself for re-election. The meeting has to elect the Auditor for the year.

Acreage:—221 Tea in full bearing. 98 Liberian coffee and cocoa. 102 coffee, cocoa, and coconuts (87)—50*a* 1 year old and 52*a* new. 151 forests. Total 572 acres.—By order of the Directors, J. Munton, Agent and Secretary.

Those present at the meeting were Messrs. W. D. Gibbon, E. S. Fox, A. M. White, Ed. Kynaston, H. S. Rix, Lieut.-Col. Duke, J. Munton and by attorney Buxton Laurie.

The Report of the Directors was not quite approved of, and after passing and approving the statement of accounts it was resolved that no dividend be paid. The election of Directors resulted in Mr. W. D. Gibbon's re-election and Mr. A. Melville White was elected to the vacancy caused by Mr. E. S. Fox's retirement. Mr. J. Guthrie was re-elected Auditor.

A NEW TEA COMPANY.

The mail brings the news of the flotation in London of the Imperial Tea Company with a capital of £1,000,000 to purchase a group of gardens under the management of Messrs McLeod & Co. of Calcutta, viz.—

			£
Ring Tong ..	..	..	25.210
New Glencoe	..	..	41,900
Washabarie ..	..	..	20,460
Central Dooars	..	..	70,230
British ,,	..	..	53.000
Jainte ..	..	..	26,000
Sylhet Tipperah	..	..	46,000
Rema ..	..	..	36,000
British Sylhet	..	..	12,960
Kuttal ..	..	..	49,490
Monabarie ..	..	..	22,670
Tarajulie ..	..	..	35,000
			438,920

The Ring Tong garden with 420 acres under plant is a Darjeeling concern; the next four gardens are in the Terai with 4,580 acres—the next three are in Sylhet with 2,418 acres; the Kuttal is in Cachar with 1,192 acres, and the last two are in Assam with 1,223 acres, There are thus 9.833 acres, under tea, the total area of the gardens being 34,685 acres. It will be observed that the Company will have ample funds for working and extending these gardens and buying other concerns.—*Pioneer*, June 8.

THE AMSTERDAM MARKET.

Our Amsterdam correspondent writes on May 27th that up to the present 4,193 bales and 120 cases of Java cinchona have been entered for public sale on June 10th. They contain about 358,180 kilos of Pharmaceutical bark, representing 2,070 kilos of sulphate of quinine, or the extremely high average of 5·78 per cent. The 25,457 kilos of Pharmaceutical bark contain 689 kilos of quinine. In the course of last year the average equivalent of quinine in the Manufacturing barks offered at the ten sales of that year amounted to about 30,770 kilos, so that the June auction shows a decrease in this respect of over 30 per cent. The average quinine-content of the first five auctions of the present year is 28,500 kilos, but this includes a considerable proportion second-hand parcels and several lots of bark imported some years ago. Considering that the first-hand stock of bark in Amsterdam has now sunk to 1,612 packages of Government and 1,054 packages of private plantation bark, including many parcels of very old import, the position of quinine may be considered to have undergone a decided change for the better within the past few weeks. Since the May auctions about 500 bales of Manufacturing bark, representing about 2,960 kilos of quinine, have been sold privately at prices exceeding the auction unit. Our correspondent also points out that the refusal of the combinet factories to sell quinine to any considerable extend has generally been the precursor of an advance in quotations on their part.—*Chemist and Druggist.*

"Japanese Gorakas"—grown on Franklands, Veyangoda, are most attractive looking fruit with a colour and bloom not unworthy of apricots; but we cannot say as much for the taste and flavour of the inside, a "mangosteen-rambutan" would be a fair description, the sub-acid reminds one of the latter fruit especially, but it is more 'woolly' and insipid.

TRAVANCORE TEA SALES.

Average 5¾d. May 28th.

Garden.	Total. Quantity.	Aver. Price.	Bro. or Pek. or Flowery Pekoe. Quantity.	Price.	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price.	Pekoe Sou. Quantity.	Price.	Broken and Souchongs. Quantity.	Price.	Fannings, Dust, and Various. Quantity.	Price.
Travancore ..	710 p	6¼												
Arienkow ..	10	4	—	—	3	5	1	6¼	1	4¾	5	2¾	—	—
B A ..	24	4	—	—	11	4¾	—	—	—	—	11	2¾ 4	2	3
Bonaccord ..	120 p	6½	46 p	7 7¾	43	6½	—	—	26	5½	—	—	5	3¼
Great Valley ..	96½ c	5¾	—	—	53½ c	5½	34½c	6½	—	—	6½c	3½	3½c	2½
H ..	30	4	—	—	14	4¼	—	—	—	—	16	4	—	—
Merchiston ..	150 p	6	58½ c	7¼	52	6¼	—	—	25	5¼	11	5	4	3¼
P ..	22 p	4¼	—	—	—	—	—	—	—	—	19	4 4¾	3½c	2½
Poonmudi ..	135 p	6½	39 p	*5¼ 7¾	63	6½	—	—	29	5¾	—	—	4½c	3½
South Travancore T C V ..	123	7¼	39	8¼	41	7	43	6¾	—	—	—	—	—	—

Teas marked thus * are New Season.

—*Gow, Wilson &S tanton's Report.*

JAVA CINCHONA SHIPMENTS.—The exports of cinchona-bark from Java during the month of May have again been moderate. A cable received at Amsterdam on June 1st gives them at 600,000 half-kilos. The following figures show the totals for the past five years up to the end of May :—

	1893 Amst. lb.	1894 Amst. lb.	1895 Amst. lb.	1896 Amst. lb.	1897 Amst. lb.
Month of May	714,000	900,000	402,000	768,000	600,000
Jan. 1-May 31	3,244,000	3,288,000	2,879,000	3,260,000	2,584,000

—*Chemist and Druggist.*

WHY SHOULD THE CEYLON GOVERNMENT NOT EMPLOY AN AGRICULTURAL CHEMIST ?

"IN Barbadoes and Demerara there is a Government Chemist, why should not there be one in Ceylon?"—so writes a London Correspondent by a recent mail—and we can only echo the question, and ask—"Why not indeed?" Barbadoes has a population under 190,000 ; a general revenue of £165,000 or so, and an annual export trade under a million sterling; British Guiana has 260,000 people ; £600,000 revenue and about two million sterling of export trade ;—while Ceylon with over 3 million people, and a revenue approaching 1½ million sterling, has an export trade of over 4½ million pounds sterling. Surely then, we can afford a special Agricultural Chemist as well as the two minor Western Dependencies. It used to be said that the material progress—indeed the civilization of a community could be gauged by its importation and consumption of "sulphuric acid"! That had, of course, to do with a high state of cultivation of the land accompanied by such scientific guidance and experiments as Messrs Gilbert and Lawes had made familiar in England. In Ceylon, the time has fully come for agricultural experiments under the guidance of science. It will be remembered that Mr. Willis, in his Administration Report, the other day, specially hinted at desirable work which belongs to the Department of Agricultural Chemist. Now, His Excellency the Governor should know that there is a competent Chemist available in the island in Mr. M. Cochran—whose book ("Ceylon Manual of Chemical Analyses") is a standard work for local and planting reference—and we do not fancy that Mr. Cochran's duties in Colombo would hinder his taking up work with Mr. Willis, or in connection with our Planting and Agricultural Industries. The sooner he is appointed for such duties, the better for the material interests of the Colony ; for there is no doubt that experiments of great value to our planters, and agriculturists generally, could then at once be instituted.

A CEYLON PLANTER'S VISIT TO SOUTH AFRICA :

CEYLON TEA IN JOHANNESBURG AND ALL OVER THE COUNTRY.

Reddersburgh, Orange Free State,
May 16th, 1897.

We had a charming voyage from Colombo to Durban—no worry with a crowd of passengers and brass bands playing at meal and other times. The "Clerkeragi" is a strong, well-built boat, and Captain Roberts knows how to take care of his passengers, and landed myself and some others at Durban in 17 days in good condition. Durban was hot and a bit steamy—85° in the shade. I was rather glad to get away from the place, but it took me the most part of a week to see if any business could be done. The Natal-grown tea handicaps Ceylon as there is 6d per lb. duty on imported tea. They are all more or less interested in Natal-grown tea. It is the poorest stuff I have ever tasted in my life. This Natal tea is advertised and pushed beyond anything you can imagine. This is such an enormous country that it costs a lot of time and money to get about. I am in splendid health, however, and I can move steadily along. From Durban I went on to Pietermaritzburg, Ladysmith, Standerton, Heidel-

burg, and on to Johannesburg. I saw McLure & Co. They are doing good work for Ceylon and sell nothing but pure Ceylon tea. They have good tea rooms, which are crowded from morn till night. But settlers must be things in this country. That is to say, they are wholesale and retail and general merchants—all rolled into one. They will buy a bag of mealies and they can buy a 1,000 bags of mealies. The same with everything else. I had not tasted a cup of even passable tea until I got to Johannesburg and got some from McLure & Co. The tea and coffee in the hotels is vile stuff; and in nine cases out of ten, it is intended to be. A glass of whisky costs 1s, and a quart bottle of English beer is 4s. In most of the hotels that I have been in, there are men parading the dining rooms and calling out "Any orders for the bar?" So that with such prices for liquor you can easily understand why hotel proprietors are not working to push the sale of tea, cocoa or coffee. The P.A. will have to come to the rescue of S. Africa. There is an enormous quantity of tea used in the country and nearly all low-class Chinas. I have hardly seen any Indian and Ceylon tea although I have been in the country nearly a month I have seen very little of it. I go to Bloemfontein tomorrow, capital of O. F. S., and then on to East London. Charming country and such a climate! If you have never been in South Africa, come straight away; you will get enough material for your pen to keep you going for a very long time—and such a climate to settle in. Talk of Nuwara Eliya: it is not in it with such a climate as the Cape Colony, O. F. S. and S. A. R The Kaffirs are fine big men and their women are big too for the matter of that. They are a cheery, good-natured lot of people. I have hardly any time to amuse myself—I have such a lot of writing and have to read up a lot to get along on my journeys in the best possible way. Good farms can be bought at 10s per acre. My brother has a farm of 12,000 acres, for which he paid £5,000—good for horses, cattle and sheep.

PLANTING NOTES.

QUALITY OF TEA.—A London buisinessman writes:—"I think the late Correspondence in the *Ceylon Observer*, must be regarded by all impartial readers as of particular merit, and with a really practical end in view. Seriously I think the matter requires immediate enquiry, for I hear from private friends in the Tea trade that Ceylon's are not what they used to be. I have heard that samples of soil and manure are now being freely analysed for teamen in India and very few for Ceylon. This did not use to be the case."

JAMAICA ORANGE RECEIPTS IN NEW YORK.—The following statistics are from the *Fruit Journal*, and show the receipts of Jamaica Oranges at the port of New York for the past four years, up to December 1, 1896. Last year there was more than twice the quantity of Jamaica oranges received than the year previous, and three or four times as many as was received in former years:—

Receipts of Jamaica Oranges at New York, from September to May.

Year.	Boxes.	Barrels.
1892-93	7,688	43,050
1893 94	5,448	20,261
1894-95	13,296	88,951
1895-96	46,322	199,974
1896-97, to Dec. 1st.	25,928	180,777
	..	553,013

TEA BULKING.—"Senex" sends us some sensible, practical hints for the benefit of his brother planters on the subject of Tea-Bulking in a letter elsewhere. We commend what he says to the attention of those concerned. Everything that can conduce to careful accurate bulking in the factory, is of importance at this time.

THE COFFEE MARKET.—Is the following an indication of what may come to "tea" if the planting of "5,000 acres" by one Company here and there continues?—

—The *Triester Zeitung* represents the position of the coffee market to be utterly hopeless, and blames the Brazilian coffee-growers, whom it accuses, not only of under-estimating their crops, but of continuing to place their coffees on the market in ever increasing quantities, to the utter ruin of any chances of profit by their competitors. The recent reports of the extent of the Brazilian coffee crop have, according to this newspaper, completely knocked the bottom out of any hopes that the coffee trade was not in such a bad position as was represented to be the case. In the opinion of the *Triester Zeitung* there is only one thing which will remedy this state of affairs, namely, the formation of a strong syndicate to buy the whole of the present visible coffee supply of Brazil, and all that remains in the interior, and lock it up until better times come round. Our contemporary thinks that this operation would be by no means difficult at the present moment, and that a capital of £6,000,000 would probably be all that would be required to carry it out. Inasmuch as the *Triester Zeituug* thinks that large profits might be made by this scheme, it sees no reason why capitalists should not go into it.

The *Hamburger Handelsblatt* rather ridicules this proposal, and asks why, if there is so much money in the coffee trade, a proposal requiring £6,000,000 for its realisation should be made at all? It also suggests that schemes of this kind have more about them of the quack doctor than the legitimate practitioner.

A PRODUCTIVE GUAVA TREE.—The "minor industries" being the question of the day, I think it may interest you to know the output of one guava tree, of a very ordinary description growing in my place "Gully Castle." From the 11th February to March 11th, the fruit was gathered every other day and converted into jelly, stewed guava and sometimes dolce; of the two latter no account was kept as it was used at home and given away freely, but the jelly we kept an account of and at the end of the month during which it was being made we had got 50lb. when we stopped, a sit was a very good supply to keep us going for a long time. Since stopping, the tree has continued bearing abundantly, and I have no doubt but that an equal or even greater quantity could have been secured, but the birds have been having a good time, which judging from the numbers that come to the tree, must find it very welcome in these hard times, and I don't grudge the poor little beggars their enjoyment. The stewed guava and dolce I put down roughly at 20lb. and feel sure that I am under rather than over the mark: that gives 70lb. of preserves from one tree in a month. I don't know what figure the stuff sells at wholesale, but if one wishes a pound of guava jelly you must pay 1s 6d for it. I understand it does not cost 9d per lb. to manufacture, consequently if retailed a good profit would result. There are in some parts of the island an unlimited supply of guavas fit for converting into jelly, etc., and yet I believe guava jelly is actually imported from Barbados. We should be able to beat them at that, don't you think?—A. CAMERON MAIS, Kingston, April 8th, 1897.—*Journal of the Jamaica Agricultural Society.*

CACAO AND OTHER CULTIVATION AND THE "TROPICAL AGRICULTURIST."

Mr. E. E. Green, in the letter we publish on page 125, makes a valuable suggestion. It is that one general index should be compiled for the first ten volumes of our monthly periodical. But why confine it to ten? We are inclined, while about it, to make a complete index for the whole sixteen volumes which have now been published, the June number just issued finishing the last. In doing so, of course, care must be taken to omit reference to ephemeral matter of only passing interest, so as to reduce the bulk of the index and make it the handier for everyday use.

In reference to the Cacao disease described in Porter's "Agriculturist" in 1833, we have turned up the original book and find the author is referring chiefly to Mexico, though also to the Spanish States in South America; but no more is said on the disease referred to than we quoted in the *T. A.* In Mr. Hart's little Manual on "Cacao," besides the two greatest enemies of Trinidad planters—the Parasol or Umbrella Ant and the Cacao beetle, both fully described—and a fungus which sometimes attacks the pods, the chapter on "diseases" opens as follows:—

Fortunately for the cultivator the serious diseases which attack the Cacao tree are few, except the plant is placed in a totally unsuitable position. Perhaps the most common disease is one which is known under the name of Canker. This causes the stem and branches to dry in certain spots and along certain lines and generally results in the death of the tree. The cause and the remedy are not far to seek, for when trees are planted in good well drained ground, little or no Canker is to be found among them, but in poor surface soil, badly drained, with a hard subsoil in addition, Canker is sure to appear and to kill out the trees, for it is really the enervated condition of the trees which allows the attack to establish itself.

It is very probable that there are fields afflicted with canker—as seen by Mr. Green—and also others as described by several cacao planters, affected by a "poochie"—in some cases the *Tomicus perforans* as described by Mr. Van Der Poorten; in others perhaps by the cacao beetle or *Steirastoma histrionica*, WHITE, thus referred to by Hart:—

The attack is made by the beetle laying its eggs either in the crevices of the bark, or under the bark in holes made by the insect itself. The larvæ then work great damage to the tree by cutting long channels through the soft wood of the stem to such an extent that the slightest breeze breaks away the branch and destroys it, and sometimes the depredation of the grub is so great as to kill the tree outright. The only remedy which it appears can be suggested, is the collection of the beetles when out on their hymeneal tour, or when quietly resting in the crevices of the bark in the early morning hours. The larvæ may sometimes be destroyed by probing a stout wire into the hole where they have entered, thus impaling the creature at its work. This is not always possible, but where the life of a valuable tree is at stake, every endeavour should be made to arrest the destructive progress of the larvæ or grub, which can generally be found and destroyed without much injury to the tree, if a close and careful examination is made. In cutting out a grub, care should be taken to make the wound as small and as little jagged as possible, and to cover it at once with the mixture recommended in a former part of this work for covering the wounds made when pruning.

THE PROSPECT OF A RISE IN TEA.

The troubles of our planting friends in Assam—as reported in successive telegrams—if confirmed when details come to hand by post, cannot fail to influence the tea market both in India and Ceylon as well as in Europe. Here is what an observant colonist says:—

"These telegrams from India about the damage done in Assam by earthquakes to factories and roads and the comparatively small exports of tea from Ceylon to date ought to make *tea rise*. The most important telegram in respect of tea is that which states that it will take 2 months before tea can come from Assam to Calcutta in any quantity."

There may possibly be a call on Ceylon planters to aid their brethren in Assam.

RICE IN KANDY (CEYLON).

We had an enquiry the other day as to the price of rice in Kandy this year as compared with the rate in 1896. Here is what we believe to be a reliable comparison:—

		R.	c.
Soolai gives an average for	1897 ..	3	62
	1896 ..	3	12
	Difference ..		50
Kallunda	1897 ..	4	25
	1896 ..	3	49
	Difference ..		76
Muttu Samba	1897 ..	4	36
	1896 ..	3	61
	Difference ..		75
Kaivaru	1897 ..	4	38
	1896 ..	3	75
	Difference ..		63
Kuruwe	1897 ..	4	12
	1896 ..	——	

This last rice Kuruwe is rather an inferior rice lately brought into country since the Indian Famine took effect. Soolai rice was not seen on the market since April last.

INDIAN PATENTS.

Applications in respect of the undermentioned inventions have been filed, under the provisions of the Inventions and Designs Act of 1888, in the office of the Secretary appointed under that Act during the week ending 29th May 1897:—

Improvements in tea rolling machine tables, to be called "Flockhart's solid reversible well casting and plates for tea leaf rolling machine lower tables."—No. 211 of 1897.—William Burt Flockhart, engineer, Souajuli tea estate, Tezpore, Assam, for improvements in tea rolling machine tables, to be called "Flockhart's solid reversible well casting and plates for tea leaf rolling machine lower tables."—*Indian and Eastern Engineer.*

RUBBER CULTIVATION IN THE STRAITS.—It is evident that the coming product "rubber" is not to be neglected by planters in countries around us: we have on an enquiry from an ex-Ceylon planter in the Straits for our Manual and for seed, the latter of which we can only answer by referring the applicant to the Manager of Culloden estate.

DRUG REORT.

(From *the Chemist and Druggist.*)

London, May 27.

Cardamoms show an advance of from 1d to 4d per lb., according to quality. S. Amer. Loxa bark sold cheaply. Croton seed neglected and tending easier. Zanzibar cloves flat. Cochin ginger is dull, Jamaica in large supply and about 2s lower. Nutmegs are firm, but mace is slow of sale. Quillaia-bark is much dearer.

CARDAMOMS.—It is said that the last shipments of the recent crop of cardamoms have now been made from Ceylon, and that there is only about 150 cwt. of the drug left there, the bulk of which will be required for consumption in India. At auction today the supply consisted of 84 boxes only. It was evident that buyers had recovered from the shock of the recent "monster supply," for bidding was very brisk, and prices were higher all round, good to fine qualities being from 3d to 4d, small kinds 1d to 2d per lb. dearer, while for seed an advance was also obtained. About 55 boxes sold as follows:—Ceylon-Mysore, medium to bold fine pale 3s 5d medium pale 3s 1d to 3s 2d; small 2s 2d to 2s 4d; smal to medium fair yellow 2s .d; very small pale 1s 11d to 2s per lb. Ceylon-Malabar, medium to bold fair but light 2s 6d per lb. Seed, according to quality, from 2s 5d up to 2s 11d per lb.

CINCHONA.—At today's auctions only South American barks were offered. Twenty serons Loxa sold cheaply at 7d to 8d per lb. for fair quality, and at 3½d for ordinary damaged ditto. Twenty-three bales of Bolivian-Calisayan, thin orange pieces, were bought in at 1s per lb. One bale of Red bark, in small thin chips of little colour, at 6s per cwt., and 10 bales fair Carthageua at 6d per lb. Of a new arrival of 58 bales Guayaquil, 2 sold at 7d per lb. for fair, partly mossy, and 4d per lb. for very ordinary dull quality.

CROTON-SEED.—Buyers are holding off, evidently fearing that further supplies will come in. Eight packages were bought in at auction today, fair quality from Bombay at 75s per cwt.

QUININE.—The situation is very uncertain. The Brunswick factory still quotes 9½d nominally, and Howard's only 9d per oz. for bulk, but the makers are very carefull to whom they sell, as they do not wish to encourage speculation. The Auerbach factory is not a seller at present, but on Monday B. & S. offered for July-August delivery at 8½d per oz. They have sold several small lots to druggists, but they refuse to deal with brokers and speculators. Among other business which was rejected was one order for 10,000 oz. for shipment to America. T day they are not selling at all. On the spot the market is firm, and it is doubtful if much can be had below 9d per oz., or even at that figure. At auction one case of ten 100-oz. tins of Tallandier's realised 8½d, and a case of twenty 100-oz. tins Dubosc 8¼d per oz., the last-named figure being subject to approval.

OIL (essential).—For 3 cases fair Cinnamon oil at auction today 1s 5d per oz. is to be submitted.

KOLA-NUTS, 23 packages changed hands at 3d, good dry dsecription.

INDIAN TEA ASSOCIATION AND LABOUR SUPPLY.

A meeting of the Indian Tea Association of London was held on Tuesday, June 4th, at 14, St. Mary Axe, to consider the question of promoting a movement of the Indian population from the congested districts for the purpose of cultivating the waste lands in the Assam Valley. General Hopkinson (late Agent to the Governor-General in Assam) presided, and said he thought it clear that the immense area in Assam could only be cultivated by independent immigration. The first thing to be done towards promoting such a movement was the adoption by the Goverment of India of the recommendation of the Chief Commissioner of Assam that the Assam-Bengal Railway should be extended from Gowhatty so as to join the Northern Bengal Railway system. Tea planters would be relieved to find that the Chief Commissioner was fully alive to the necessity of adopting precautions to prevent any facilities given for bringing land under cultivation resulting in the enticement of coolies from the tea gardens. He would not himself incur the responsibility of founding a colony of Bengali coolies in Assam, as he believed the country as a whole to be unfitted for their occupation. The Hon. P. Playfair spoke of the importance of the Indian Government adopting some scheme for transferring agriculturists from the congested districts to the Assam Valley. He thought such a policy would be in the interest of the Assam tea companies, as it would probably relieve them of the necessity of keeping for 12 months coolies who were serviceable for only five or six months in the year. The jute trade of Dundee would also be benefited because the churs in Assam were well adopted for growing jute of a High quality. A discussion followed, and on the motion of Mr. R. B. Magor, seconded by Mr. A. C. Sweeting, it was eventually resolved that as the subject discussed was of such importance, its further consideration should be postponed to a future meeting.

HOW TO RE-INTRODUCE CHINA TEA INTO PUBLIC FAVOUR.

To the Editor of the

NORTH-CHINA DAILY NEWS.

SIR,—I venture to address you on the necessity of employing the sirocco in the manufacture of tea.

To develop malty flavour and good keeping qualities, samples which were charactered by London brokers on arrival as "flat, dull, and wanting in fragrance," were put through a Sirocco, and in each instance were enhanced in value, flavour, and character by quite twopence per pound. It has been demonstrated that a rich malty flavour can be developed upon any teas by proper treatment of them in the Sirocco, even after their arrival in London, but of course the process gives better results if done in the manufacturing districts, than if done after the teas have been kept three or four months in an imperfect condition. It is a great pity when every possible care has been given to the manufacture of the leaf from plucking to packing, that the fullest benefit should not be obtained therefrom, simply because of imperfect performance, which can be easily acquired by firing for the development of flavour, and for giving "good keeping" qualities to the tea. It is in the final siroccoing of the tea before packing that the best flavour is developed, and the apparatus can produce it upon teas which have received their primary drying over charcoal. Careful attention to the process may easily effect a difference of twopence or threepence per lb. in the value of the teas for the London market. Properly siroccoed teas actually improve by a few months' keeping in well closed chests, whereas teas improperly treated before packing "go off" and depreciate before arrival in London, and continually go from bad to worse.

The process is really a roasting more than a drying process for, at a low temperature, the tea could be made perfectly and absolutely dry, without in the slightest degree producing the richness of flavour that a suitably high temperature will develop.

It is the chemical action of hot air upon the tea which produces the rich flavour referred to, and air at about 150 to 220 F., according to elevation, develops it better than at any other temperature.

Pure hot air has a more energetic and perfect chemical action on tea than air which is impregnated with fumes of coke or charcoal fires. It is absolutely necessary that the hot air should get at every leaf properly, so that the tea itself be raised to the requisite temperature; it will not do therefore to hurry the roasting process.

With fine broken teas a less quantity should be put in each tray, because the leaves lie so close that they offer a much greater resistance to the passage of the hot air through the trays than is the case with open leaf, like Pekoe or Souchong.

A very high temperature can be used even up to 300 F., if the teas have been kept a length of time before packing, and have become somewhat flat and soft flavoured, but at this temperature very careful attention is required, together with thin spreading of the tea upon the trays, and quick removal the moment the necessary flavour is attained. If left too long at such a high temperature discoloration of the infused reaf would be the result, whereas at the lower temperature the leaf is scarcely perceptibly darkened in colour, no matter how long it may be subjected to that degree of heat. Too high a temperature is likely to develop a burnt flavour, and discolouration of the infused leaf. The infused leaf of properly roasted tea should be a degree, but only just a perceptible degree, darker in colour than the same tea without being roasted, and the dry leaf should be somewhat more glossy black, and the pekoe tips a shade yellower. A tin-lined bin or box, of suitable dimensions, should be provided alongside the sirocco, and each tray full of tea as finished should be emptied into it. A full day's work of one sirocco ought to fill this bin, say 1,500 lb., and before packing the tea should be well bulked together, otherwise undesirable variations in value may occur, even from the most practical hands. The tea will be found to remain hot enough in the bin to be suitable for bulking and packing in the evening. From ripe experience tea planters in India and Ceylon deem the Sirocco absolutely necessary to satisfactorily cure their yield, and the romance of only rolled tea would quickly disappear if compared with properly machine-made tea which I have carefully tested.

The following are the necessary qualifications :—Withering, rolling, fermenting, drying, sorting and packing.

In conclusion I might remark upon the large quantity of "out of condition" and damaged teas at present offering on this market, some of them entirely unmerchantable, which if properly made by machinery would have been valuable, and saved the owners from the probable heavy loss.—I am, etc.

Hankow, May 27th. Wm. White.

—*N.-C. Herald*, June 4th.

PRODUCE AND PLANTING.

The Outlook for Tea.—Following the example of those who cry peace when war is inevitable, some people find a subtle pleasure in pointing out danger in anticipation of evil and without sufficient cause. The frequent additions to the list of new tea Companies lends some point to the warning of financial critics who are anxious no doubt to guide investors in the right path at the earliest possible moment, and to exhibit a red light before there is actual danger. This is admirable as an exhibition of alertness, but it is not fair to an industry which has a clean record and, we hope, a bright outlook. The risk of good and bad seasons, the bugbear of over production, are dwelt on with great emphasis. The old, old story is reiterated that new markets must be found, consumption must increase or else dividends will decline. These are truisms, and in emphasising them the writers are merely calling attention to the ordinary risks which attend all commercial ventures. The demand for remunerative investment is so keen that tea-garden proprietors have not unnaturally taken advantage of the moment to convert their estates to the joint stock form. Allowing that tea companies are increasing rapidly, and that when the new land is cultivated and in bearing the supply of tea will also be much larger, the danger apprehended may be minimised by the opening of fresh outlets for the supply and the further development of home consumption. Identical risks attend all forms of enterprise, but we are not aware that quite so much stress is laid on these chances in their application to other industries. The past year has been a prosperous one for tea, and the prospect continues good. The need for scrutiny in the case of some of the new concerns offered to the public does not warrant insinuations against the good faith of all vendors, nor justify gloomy forebodings of future trouble, unless those who indulge in them think it accords with the fitness of things to cry "Breakers ahead!" when the ship is going steady in mid ocean. There is no sign at present of the downgrade movement which a few pessimists try to discern. On the contrary, the past year's record, as far as it is known, shows that the majority of Indian and Ceylon tea gardens are worked with remarkable ability, and that the industry for the most part is in the hands of capable and straightforward men with sharp eyes to its further progress.

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The Chemistry of Cocoa.—It is desirable that those who handle produce should know something about it, and the *Grocer* therefore gives its readers some information about the chemistry of cocoa, in which it says: "Cocoa is obtained from the tree *Theobroma cacao* and its congeners, several species of which are indigenous to South Africa, and are cultivated in the East and West Indies, parts of Africa, and some districts of Australia. The portion actually utilised is the seeds, some thirty or forty of which are found embedded in the pulp of each cocoa fruit, the latter being a pod about eight to ten inches long. To isolate the seeds the pulpy mass is allowed to ferment for a time; it thus becomes more easily disintegrated, and allows a ready separation of the seeds. The latter are also believed to share in the fermentation process, and according to some authorities the characteristic cocoa-alkaloid is formed during this stage; but whether this be so or not, it is certain that the flavour and aroma depend largely on the careful fermenting and the subsequent drying and roasting to which the cocoa-beans are subjected. After the roasting the husk of the seed is separated, and the resulting kernels are what are known commercially as 'cocoa-nibs.' They contain a remarkably large proportion of fat or 'cacao-butter,' fully 50 per cent. being usually present. Other notable constituents are albuminoids, about 12 or 14 per cent.; cellulose, 8 or 9 per cent.; starch, 2 or 3 per cent.; and appreciable quantities of sugar, gum, tartaric acid, and 'cocoa-red,' this last being a colouring matter resulting from the oxidation of the tannin of the cocoa. It is worthy of notice that cocoa contains considerably less tannin than is present in tea. The most important ingredient, however, is the cocoa-alkaloid theobromine; this substance, though only present in the comparatively small proportion of 1 to 4 per cent., is the constituent which chiefly confers upon cocoa its stimulative and refreshing properties. Theobromine is a white powder with a very bitter taste, showing marked poisonous effects when taken in large doses. It is a nitrogenous compound closely allied to the caffeine of coffee and the theine of tea; and like these bodies, it acts physiologically as a stimulus to the heart's action and as an excitant of the nervous system. One curious fact about cocoa is that, like preserved peas and some kinds of oysters, it always contains a small quantity of copper. The proportion, however, is very minute in good-class preparations.

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The Manipulation of Cocoa.—"So much for the material which the cocoa manufacturer has to manipulate. But, as mentioned above, it contains about half its weight of 'cacao-butter,' and hence cannot well be ground straight into a powder. Two methods of overcoming this difficulty are in use, one yielding the class of preparation known as 'cocoa essence' or 'extract,' the other giving ordinary cocoa and chocolate. In the first process part of the fat is separated by warming the material and pressing out the melted cacao-butter; in the second method the crushed nibs are 'diluted' with a considerable proportion of sugar and farinaceous substances, of which the principal are arrowroot, rice-starch, and wheat flour. Broadly speaking, all the various brands of cocoa and chocolate fall into one or other of these two groups; the differences mainly consist in the varying quan-

tities of fat extracted, or of sugar and starch added, and in the nature of this last ingredient. Flavouring material, such as vanilla and spices, is used according to the taste of each maker, thus giving rise to minor distinctions. With regard to the 'essence,' the removal of the fat, besides giving facility of manipulation, has the further advantage of rendering them somewhat more easily digestible, too much fat being prejudicial to proper assimilation. Most grocers deal in soap, but it will probably surprise them to learn that they may be selling a notable quantity of that detergent whenever they hand over the counter a pound of cocoa to a customer. Yet it is a fact that some kinds of cocoa do contain quite appreciable amounts of soap. It is not added as an adulterant, but arises thus: The fat which remains even in the cocoa essences is sufficient to give visibly oily drops on the surface of the liquid when the beverage is prepared. To prevent this unappetising appearance the cocoa in some cases is treated with alkali, which combines with the fat-acids to form a soap. The latter dissolves in the hot water, and so does not show on the surface as the oily globules would.

A COMPARISION WITH TEA.—"Cocoa is correctly recognised," according to the *Grocer*," as being more nutritious than tea, but no doubt the great difference in the 'thickness' of the two beverages tends to unduly exaggerate this idea. It should be remembered, however, that the greater density of cocoa-emulsion is mainly due to starch, sugar, and fat, which are all heat-producers. The percentage of albuminoids in cocoa powder is really but little higher than in tea. Of course for each cup of beverage drunk a larger quantity of cocoa is taken into the system than is the case with tea, and therefore a greater amount of albuminoids; but, on the other hand, something like 30 or 40 per cent. of the total nitrogenous food present in cocoa is quite indigestible. The cacao-butter expressed from the nibs is a valuable bye-product much used for pharmaceutical preparations and the more expensive kinds of soap. In Germany the husk themselves are used to prepare a beverage, 'cocoa tea,' which is an infusion of the husks made and drunk like ordinary tea.—*H. & C. Mail*, June 4

A NEW PATENT TEA BULKING AND BLENDING MACHINE.

We hear that a well-known Manager has just invented what is described as a splendid Bulking and Blending Machine. The invention came about in this way:—

"On receipt of a circular from home lately to the effect that all bulking was to be done under European supervision, and not being provided with the bronchial tubes of the elephant, and being of a decidedly asthmatical temperament, I was—after being nearly choked with fluff—compelled of necessity to invent a machine which you will be glad to hear is, so far, a decided success, thus adding another proof in support of our creed of 'pure machine-made Ceylon Tea.' When one sees the teamaker changing the bulking coolies owing to the perspiration breaking out even on them, and you begin to wheeze like the steam chest of an engine, it is time, I say, to think about inventing a machine, and I think I have got the very thing we want now, and when completed it will be a bulking, blending, final firing, and packing machine. The 'Vortex', with the help of a little elevator to raise the tea, will most effectually bulk 7,000lb. and 8,000lb. per hour. I was so pleased with it the other day, I felt myself singing:—

No more inhaling of fluff
No bathing in perspiration,
The Dorey is always up to snuff,
Give him beer and good respiration."

COST OF LIVING FOR A PLANTER ON A SOUTH INDIA PLANTATION.

I have been greatly interested in several letters in the last few numbers of the "P. O." from planters, giving statements of their monthly expenses. "Ex-Creeper" seems to have lived in an exceedingly cheap district, and I congratulate him on his economical living though I am afraid I cannot do the same to "Indigo Assistant." The following is a statement of my actual necessary mouthly expenditure, and I think it is a fair statement of the usual expenses of superintendents in my district:—

Some may consider a chokra an unnecessary servant and under ordinary circumstances, I think, he is, but I happen to live in a district when there are a number of neighbours, and thereby having many visitors, I find a chokra indispensable. Bazaar account includes fresh mutton (twice a week), fowls, vegetables, sugar and salt for cooking purposes, bread and oil. My present income is, I may state, only just over R100 per mensem. The balance goes to club subscription, medicines, bungalow and toilet necessities, clothes, boots, stationary, &c. A young planter can live comfortably on R100 per mensem, but on less it is only existence. I quite agree with "Indian Planter" that planters are very badly paid (as a rule). My life as a planter is a very pleasant one, and I should not like to change it; at the same time, under present circumstances, I am really only vegetating. How is a man to save say even £100: or at least how long will it take him to save it, on R100 or R83 a month? "Home" seems a long way off, does it not? And prospects look very black at present. However, let us hope that next year crops will improve, and that the prospects and pay of superintendents will likewise improve.—Yours faithfully. A COFFEE PLANTER.
—*Planting Opinion*, June 12.

THE MADRAS AGRICULTURAL CHEMIST.—Says the *Madras Mail*, there is a concise and workmanlike ascept about the Report of the Agricultural Chemist for the year 1896-97 which shows that Dr. Walter Leather has not during his few years of office been much affected by Indian Secretariat notions of what such documents should be like. It covers only eight pages of print, yet it contains an excellent summary of his year's work and some very lucid comments on various points of importance. His five tours during the year were chiefly occupied in the in spection of Agricultural classes and the investigation of sugar-cane cultivation in different parts of India. His time at headquarters was chiefly spent in conducting analyses and answering references for advice from many quarters. The chemical examination of Indian soils was also pushed on during the year and is now approaching completion. The enquiry comprises about 80 different varieties supplied by Local Government and will be of the highest importance when finished. At the same time it cannot, as Dr. Leather remarks, be considered to deal exhaustively with the soils of an Empire so large as India: indeed the object aimed at is merely to show the chemical composition of some of the main types of Indian soils. Dr. Leather quotes as an example illustrating the value of chemical analysis in relation to soils the details of an examination of three samples from one of the Dehra Dun Forests which clearly proved why young growth flourished well in some places and not at all in others. On the other hand, he quotes examples showing that the value of mere analysis limited and that the conditions of climate, the lie of the land, its water-supply and drainage form most important factors.

Correspondence.

To the Editor.

"ACACIA DECURRENS"—NOTES BY A PRACTICAL PLANTER.

AN AMBAWELA FUEL AND BARK COMPANY ADVOCATED.

Albion, Nuwara Eliya, June 5th.

DEAR SIR,—Your correspondent "T." [see page 57 of July *T.A.*] evidently lost all interest in Acacia decurrens after the collapse he refers to, but will he be good enough to explain what he means by "decurrent"? Some local would-be authorities argue that the term has reference to the habit of certain of the acacia family of *running* or spreading from the roots (notably A. melanoxylon and A. dealbata); but with me Acacia decurrens does not throw up suckers, even when the roots are cut. "T" asserts there are over 70 varieties of A. decurrens but in "Wattles and Wattle barks" by J. H. Maiden, F.L.S., T.C.S., &c., Curator of the Technological Museum, Sydney, 1891, there are only five varieties mentioned which you will find fully described on pp. 69-70: *decurrent* here refers to "angles from the base of leaf stalks."

Your correspondent's experience with bark was certainly not encouraging, but what would he say to R140 per ton in Colombo? I have an order now on hand at this rate. The boiling-down process you advocate is described on p. 26 and you will note that "trash" (*i.e.* prunings and branches) is chiefly dealt with in this way. "T" 's experience with mixed seed is not unique, see what Maiden says on the subject on page 7: locally produced seed is not open to this objection, my seed-bearers being all of the same variety. The information on pp. 66-69 would be interesting to intending planters, as also the "Bamboo method of planting" described on page 10. The reed Arundo Donax referred to, grows here freely, and when once established, will give an annual cutting of stalks from 12 to 20 feet long; besides being useful for plant raising, they make very neat temporary fences, warrachies for lines or split up into pegs for lining.

Who will start the first Fuel and Bark Company to buy or lease a few thousand acres of the now unproductive patana land along the Railway line between Nanuoya and Ambawela, in order to supply tea estates with fuel, the world with tanning substances, and in six or seven years give the shareholders cent per cent on their outlay!—Yours faithfully,

A. J. KELLOW.

MR. GREEN APPOINTED HONORARY GOVERNMENT ENTOMOLOGIST.

Planters' Association of Ceylon,

Kandy, 9th June 1897.

SIR,—In continuation of previous correspondence published regarding the appointment of a Government Entomologist, I enclose copy of a further letter received from Government.—I am sir, yours faithfully, A. PHILIP, Secretary.

Colonial Secretary's Office, Colombo, 8th June, 1897.

Sir,—I am directed to acknowledge the receipt of your letter of 28th, May, and to inform you that the Government are willing to purchase 12 additional copies of Mr. Green's book on the "Coccidæ of Ceylon," for distribution among the Kachcheris in the planting districts.

2. I am at the same time to acquaint you that His Excellency the Governor has been pleased to appoint Mr. Green, to be Honorary Government Entomologist.—I am sir, your obedient servant,

(Signed) H. L. CRAWFORD,
for Colonial Secretary.

The Secretary, Planters Association of Ceylon.

THE DISEASE AFFECTING CACAO TREES: MR. J. R. MARTIN IN EXPLANATION.

Yattewatte, Matale, June 13.

DEAR SIR,—I was glad to see [*vide* page 106] a correspondent writing with a view to adding to our knowledge of cacao disease. In my letter of the 6th inst. to the "Times of Ceylon," I merely gave my own opinion. I have no wish to dogmatize on this subject, and the fact of your correspondent disagreeing with my views, shows the value of discussion. We agree however on two points;—1st that this disease is not a root disease, and secondly that it is the work of a *Poochie.* Your correspondent is also certain that if a diseased tree is cut down the sucker which grows from the stump grows into a healthy tree. This is most valuable information. So on these three points something has been learnt.

As it seems to be assumed that I am opposed to the scientific investigation of this disease, I wish to explain that the idea of getting out a scientist originated with me. On the 13th February last I called on Mr. Dickenson of Warriapolla to discuss the disease, and we then agreed to raise at once such a sum as would bring out a competent man without delay. I have no doubt that the necessary funds would have been at once forthcoming. Afterwards Mr. Dickenson without consulting me wrote to Mr. Christie and asked for Government help, and Mr. Christie at once applied to the Governor—against this I protested as soon as I knew of it. Firstly, because I thought it highly probable that if we trusted to Government for a man, we would have to wait a long time for him, and secondly, as I wrote to Mr. Christie, because as soon as it is known, that we have asked for Government help, alarmist paragraphs will appear in the papers, and the financial position of cacao will be severely injured. Mr. Christie made light of my objection; but here we are with no immediate prospect of scientific help, and I think both my anticipations have been fulfilled.

At the same time I think it is probable that if cacao planters had taken up the matter for themselves and made inquiries at home in the right places, that we would have had a man on his way out now.

Sir West Ridgeway acted with zeal and promptitude when the matter was brought before him, and as matters stand we must wait on Government for help, but I think when the matter was put into Government hands, it was a foregone conclusion that there would be a great deal of delay. The authorities at home are not likely to keep a reserve of scientists ready for dispatch to distant Colonies, and as the responsibility now rests with them, they are sure to act with slowness and caution.—Faithfully yours,

JAS. R. MARTIN.

THE DISEASE IN CACAO: PRACTICAL HINTS.

Dear Sir—I see from the papers there is a great deal being written about a new cacao pest (a weevil) we are said to suffer from on some estates and in some districts more than in others. I think all men nterested in cacao planting should have your *Tropical Agriculturist* volume for 1884 and 1885 wherein cacao planting and pests are well discussed. See proceedings of Planters' Meeting folio 90, 91, 92 and 93. Dr. Trimen's letters folio 110 and 328. Advice to young cacao planters 333, 385 and 478 and many more letters as per Index. Dr. Trimen goes fully into insect pest in his valuable letter on folio 328, even the best of doctors or scientists differ. Dr. Trimen says on folio 111 flat ground is better than sloping for cacao; Bosingault says on folio 222 cacao grows best on a gentle slope;—Mr. Vollar says on folio 90 on one estate badly affected the land is poor and soil shallow; Mr. Jardine says on folio 92 poverty of soil has nothing to with the pest, he had some of his best cacao affected.

Insects.—The smaller the insects the larger the swarms they travel in for mutual protection. They as a rule never stay long in one place, as with the bee, helopeltis, paddy fly, weevil or tomici—so any visitation from these insect pests is only temporary. Strong remedies I have always found, that destroy the pest, also injure your trees. The use of woodash, lime and cowdung to the branches or stems which these insects do not like, used properly, prevent such insect attacks and are actually a manure for the tree, especially so when washed off, to the roots around the tree. The insects will soon find they are on forbidden ground and then swarm and go off some night to pastures new. I recommended in 1884 croton oil trees for shade or wind belts. Some planters who planted and kept up their croton were glad enough to get their 60/ to 80/ per cwt. for the seed last and this year.

Wind.—You can stop the wind injuring cacao, &c., by planting useful belts, from which a profit can be made.

Poor Soil.—We certainly have a variety of soil in Ceylon and it requires some time to understand the wants in different soils for the plants—from the growing plant you can often make out what is different in the soil, otherwise by filtration of soil. I have no dfficulty now to provide the necessary nourishment and bring my plants up to an evenness all round, same as I did on Maria estate with the coffee (flat and steep land, loamy and quartzy soil) yet coffee trees as well as crop, when His Excellency Sir John Douglas visited the estate, were all that could be desired. So can cacao be worked up to pay now.—Yours faithfully,

JOSEPH HOLLOWAY.

CACAO DISEASE.

Greenwood, June 17.

Sir,—I wish to submit a few remarks with reference to the two letters of Mr. Jas. R. Martin lately published by you.

He writes: "I can assure you, that the acreage which has suffered at all, is a small percentage" and further "Another point is that, whilst the acreage of cacao is, if anything, diminishing, (why?) the export of cacao is steadily increasing."—This has no value as argument against the virulence of the disease, for the high prices ruling for Ceylon Criollo up to the beginning of 1894, induced a large extension in the cultivation with more robust kinds which coming gradually into bearing makes more than up for the yearly mortality, besides, the trees are said to increase their bearing power up to the 10th year and it is only 20 years ago that planting began in this Island.

What has to be considered to make out if a product is remunerative or not is the acreage in bearing and the value of crop and I maintain that if the numerous native gardens were taken into account and the large acreage which has been abandoned between 1885-1890 owing to the then prevailing disease, it would be found that its cultivation is unremunerative in Ceylon, giving now an acreage return of less than, so far, *two cwts. per acre*! and only double this amount under very favourable conditions.

He admits the possibility that the red cacao of Ceylon (commonly called Criollo) will be entirely superseded by Forastero and by this he gives himself much more away in trying to prove the innocuousness of the disease than the unfortunate who saw 50 or 25 per cent. of his trees die out, did as a planter. This stricture of Mr. Martin was not charitable.

If then all the Criollo is likely to succumb "although gradually and thereby not bringing on a crisis," nevertheless will there be a greater loss than with coffee being replaced by tea, both products giving a return after 3 years when cacao takes double the time; and besides the success of supplies is by no means so general as Mr. Martin states, which is always the case with products of the same family.

What *you* so justly said in your article on the "Cacao Pest" (see page 801, *T.A.* for May)—"Through some occult reason the subject was tabooed in public; most people seemed to know of it and yet it was never discussed" . . . "Has this conspiracy of silence been wise?" Mr. Martin clearly thinks so, for he writes:—" . . . as soon as it is known that we have asked for Government help, alarmist paragraphs will appear in the papers, and the financial position of cacao will be severely injured." In what way?—In the fictitious value of property falling to its level, is the only and not very sound nor moral one I can see.

I agree with Mr. Martin that the author of the destruction is a *poochie* (Tomicus perforans) brought by me to your notice in November '94 for the first time, but my impression is that, so far, observations of it have been superficial. Now that the Honorary Entomologist and the Director of Botanical Gardens are at work, I suppose we shall, in time, have a proper monograph of the insect and its metamorphosis and the effects of its working.

It is my opinion that, as with Phylloxera, black and green bug and *hemileia vastatrix*, no efficient *prophylactic* remedy (the only one effective) will be discovered without the cost of application being prohibitive and therefore the best course is to plant the Criollo fields with one of the good hardy varieties, which *so far* have been unaffected.

Pioneers, as a rule, fail: those in the cultivation of cacao in Ceylon have followed this rule and the cause of it is, that in their ignorance they have planted a species of cacao, the only one then existing in the island, which proved later on to be very liable to disease, and similar, probably, to that which died out in several parts of the West Indies. The higher prices obtained for it encouraged them for some time to persevere in the mistake, till some of the more hardy kinds, latterly imported, having come to a certain age, shewed their resistance to disease and are still free from the attack of Tomicus, but there is only proof of comparative immunity where other varieties in close vicinity are attacked.

I know of two Venezuelan kinds which have stood this test and besides being very robust bear a good size pod with thin rind and large

beans, cream or light purple inside. They are far superior to the true Forastero, with flat beans, dark purple inside, flinty when dry, and always quoted in Europe below the other kinds. Some of the varieties of the Peradeniya Gardens are very robust, but the bean belongs to the latter type.—Probably other good varieties exist in the island, but I think that the selection of the best seed cannot be too much recommended.—Yours truly, A. VAN DER POORTEN.

MR. E. E. GREEN ON THE CACAO DISEASE —AND WITH PRACTICAL INFORMATION.

Eton, Punduloya, June 21, 1897.

Dear Sir,—Mr. Joseph Holloway's letter (see page 124) refers sufferers from the present cacao disease to the discussions on cacao pests in the *T.A.*, 1884-85. The present circumstances are however, very different. The disease of that day was traceable to Helopeltis and took the form of blackened shoots and branchlets, with subsequent dying back of the branches. This trouble is still present to a certain extent and may possibly be confused with the more serious disease which is now attracting public attention. In the present cases investigations on the spot lead me to believe that, the disease *is not directly traceable to any insect.* It commences with the bark, and when the canker has completely girdled the stem or limb, then—and not till then—do the upper parts of the tree die off. One special character by which this disease may be recognized is a claret-colored stain which is visible upon cutting into the affected parts.

There is however, one reference to the same or a very similar disease in this volume of the *T.A.* ('84-85). On p. 114 there is a quotation from an earlier *Tropical Agriculturist* published in 1833 by G. R. Porter. After describing various enemies of the cacao the article goes on to say.—"Cacao trees are likewise subject to a disease, which shows itself in the form of black spots, or blotches, on the bark, and which, as soon as they appear, should be carefully cut out, or the trees will quickly die. This disease does not make its appearance until the trees are in a bearing state." It is not quite clear from what country the disease was they described; but from the incidental mention of "Spanish planters" it is presumably referable to one of the Spanish colonies. It seems at any rate that the disease is an old one, and further information may perhaps be obtainable from the same source.

With reference to the present day *Tropical Agriculturist*, this most useful publication would be still more valuable for every day reference if a general index of say the first 10 volumes was available. It is a work of considerable time to search through the numerous volumes for information on any particular subject.—Yours truly, E. ERNEST GREEN.

CACAO CULTIVATION IN CEYLON—THE CROPS, VALUE AND DISEASES OF THE PLANT.

Yattewatta, Matale, June 24.

Dear Sir,—As far as I can follow Mr. Van-Der Poorten's letter to you, (see above) the points he raises are :—

1. That to arrive at the present position of cacao, a comparison of the yield per acre with that of a few years ago should be made,
2. That two cwt. of cacao per acre does not pay.
3. That he is so far convinced of the ultimate success of the stronger kinds of cacao generally, known as Forastero, that he recommends his brother planters to plant them.

To No. 1 the answer is easy :—in the Report of the Planters' Association of 1894, I think, the acreage planted with cacao is given at 18,000 acres and the acreage in bearing 12,000 acres, the yield per acre is cwt. 2¼ per acre. It is a liberal estimate to say that 15,000 acres are now in bearing, 14,000 is probably nearer the mark, and the estimated crop is cwt. 35,000; so the yield per acre has not fallen off.

In answer to 2, the acreage value of cacao for the year is probably 68s per cwt. in London. Values in cacao generally fall at this time of year, and it is now quoted at 65s, which means a net in London of 57s—say 55s—to be on the right side, and cwt 2 are worth £5 10s; against expenditure, say, the equivalent of £3; profit £2 10s per acre, which, on a capital account of £20 per acre (a most liberal allowance for bringing cacao into bearing), means 12½ per cent. That is what cacao means giving bad crops and getting bad prices, and allowing an outside figure for capital account. But I have shown that the crop for the whole island exceeds cwt 2 per acre, so that it must be a very bad estate that does not give something more than this. Take cwt 3 per acre as the yield of a fairly good estate and it will be seen that even in these bad times there are worse things than cacao.

The third point. I cordially endorse, and for many years have had the courage of my opinions. I have, with a few exceptions, planted with stronger varieties of cacao generally known as Forastero for the last ten years and am now reaping the benefit of having done so.—Faithfully yours, JAS. R. MARTIN.

CACAO CULTIVATION AND PRICES.

Dear Sir,—With reference to Mr. Jas. R. Martin's letter I wish to submit a few remarks. The price of 65s which he adopts is far above the mark, that being the telegraphic quotation for *fair red bold.* What about the dark, the triage, the native, the broken? Would the price of good broken pekoe be accepted as the average price of tea?

If the £20 to bring cacao into bearing includes the price of land, I think it decidedly cheap.

I take exception as to the acreage; for Mr. Martin has left out of calculation the native gardens which must produce several thousands of cwts.

My contention is that so far, cacao has not been a profitable product in the island; that is if all the failures are set against all the returns; in other words if a proper debit and credit account based on proper statistics, is established.

It is obvious too that even an average return of 2 cwts. per acre must indicate that cacao has not found a suitable habitat in Ceylon.*—Yours faithfully, A. VAN DER POORTEN.

* That is in certain parts; for there are plantations that yield a good deal more and are decidedly profitable as Mr. Martin reports his own experience to be.—Ed. *T.A.*

TEA BULKING: PRACTICAL ADVICE.

Dear Sir,—As the subject of tea bulking is much in evidence at present, and perhaps justly so, a few remarks on it may not be altogether amiss.

In the early days of the Tea Industry here, a high authority stated in the *Observer* that the way to bulk tea was to put it in a heap from the bins, then spread it out in a circle, then heap up again and so on till a perfect equalization was obtained. This is a slovenly plan, as the coolies would be kneeling or squatting amongst the tea.

In absence of a bulking cylinder, a neat and sure way is to operate on a floor 30 or 40 feet in length by 10 feet in breadth, the tea brought from the bins in pails or bags, then poured out shoulder high, from *end to end* of the space above mentioned. All bins containing the grade should be opened simultaneously, and the charges of pails or bags poured out alternately from the several bins. When finished the heap of tea will be at an angle, like road metal, several feet in width at the base.

The tea of various fields, and days' makes, will now be in *strata* in the heap; all that is required is to turn it carefully from end to end twice. The further handling of the tea in final firing and packing will thoroughly mix it, all differences will be incorporated, or bulked. This work is soon learnt by coolies, and is done very speedily and costs little or nothing; but it is so very important for both buyer and seller, by samples, that the Superintendent should see it done. Should he choke with the tea bloom, no matter. It is easy to *close up the ranks*!—Yours faithfully,

"SENEX."

TEA PREPARATION IN INDIA.

Sir,—Can any of your planting correspondent kindly enlighten me on the following point:—

We find that if we wither our leaf on these estates according to the average wither, we get a *dark* out-turn, and consequently we have to put up with an undue proportion of broken leaf owing to the wither being light, in order to obtain a bright out-turn.

If any of your planting friends would kindly suggest any method that would enable me to obtain a good wither *without* a dark out-turn, I would be very thankful, also I would be interested to hear whether this local peculiarity has been observed elsewhere.—Yours faithfully,

AN INDIAN PLANTER.

P.S.—Leaf I have obtained from out-lying localities, I find I can wither well and run no risk of dark "out-turns."

[Reference to an experienced Ceylon Manager has brought us the following:—

"It is impossible to express an opinion on enclosed as there is no reason why the leaf from outlying localities should differ from his local leaf if the conditions are similar in both cases, and the treatment of the leaf identical. Given similar jât, elevation and length of time from pruning, and the results should be the same; but if any of these differ, it might affect the outturn, and in any case he would not get a bright outturn from recently pruned tea. I presume he has tried various experiments with the view of getting the best possible results, but if not, he would better do so. I would wither fully in any case, and if he rolls hard or long, say two or three separate half hours, I would not ferment at all or very little. The roll should not be allowed to get overheated during rolling. I cannot suggest anything else except that I would send my local leaf round by the outlying localities rather than be done, but this latter is really absurd nonsense."

—Ed. *T.A.*]

CEYLON TEA IN AMERICA: IMPORTANT NEWS FOR CEYLON PLANTERS.

London, June 11.

Dear Sir,—The threatened duty has not been put on tea in the States. But the new regulation regarding dusty *broken* teas has already shut out quantities of our teas. These have been refused admittance at the Port of New York. We have repeatedly advertised that our teas have never been condemned at any Port in America. We can boast so no longer. Another blow to *broken* pekoes—already at a discount. Ceylon planters should copy Indian in making whole leaf (broken ?) pekoes, and less *smashed-up fannings*. For American shipments, it *is now necessary* "brokens" be sifted out.—Yours faithfully,

WM. MACKENZIE.

13, Rood Lane, London, 9th June 1897 E.C.

Wm. Mackenzie Esq., London.

Dear Mr. Mackenzie,—We understand from our conversation of yesterday, that all teas entering the United States are now subjected to a sieve test, and that no tea is admitted which contains more than 10 per cent. of small broken.

We therefore think this a suitable opportunity to call the attention of planters to the very large amount of Ceylon tea which is of a nondescript kind, and sorted into no very distinct grade. So much tea marked broken pekoe is neither a true broken pekoe nor a leaf tea, but a mixture of pekoe, broken pekoe, and fannings.

The large quantity of this (which is quite unsuitable for the export trade) coming to the London market has severely depressed quotations for broken pekoes during the past season. The variation in price between them and the pekoe grades is now very small, although intrinsically, for liquor, the difference should be much greater.

We feel sure that if you called attention to this matter on the other side, and pointed out to the planters the necessity for sending home their teas better sorted, that it would be greatly to their benefit, and relieve this market of the super-abundance of so called broken pekoes which has lately been so noticeable. Trusting the above remarks may be of some use.—We are, dear Mr. Mackenzie, yours faithfully,

GOW, WILSON & STANTON.

A PRIZE OF $200.

Is offered for the best poem, not exceeding twenty lines on machine made

CEYLON AND INDIA TEA.

Only one prize is offered, but poems found suitable will be purchased from competitors. This method is considered more likely to give satisfaction than a long list of graded awards.

Poems may be signed with name or *nom de plume* for identification and must be sent *by Mail only* previous to Aug. 1, 1897, addressed "Ceylon and India Tea Prize Poem" care of J. Walter Thompson Co., Times Building, New York.

No MSS. will be returned. The award will be made by three literary people and announced before Oct 1st, and the poems published in leading papers.

The following figures or metaphors on the Union of Boiling water with India and Ceylon Tea, must be included in the poem.

1.—A Teaspoon of Ceylon and India Tea is like a maiden's heart, pure and unsullied.

2.—The boiling water represents the man. The warmth of his love extracts and sets free the strength and sweetness of the maiden's heart and thus assimilates all her goodness and purity. The water must be boiling (carry on the metaphor) or the true essence is not extracted.

3.—The Teapot is the altar where the marriage ceremony is performed; in other words five minutes infusion or ceremony make the two into one life.

4.—The liquid tea is the married life, free from bitterness, wholesome, refreshing, and two in one, goes forth doing good to all: soothing, comforting, and invigorating.

5.—Sugar and cream are alike riches and luxury. To many, life is incomplete without them though some think that they spoil its fragrance.

6.—All other teas being soiled by the tou h of many unclean hands, (here metaphor) can on'y make unhappy unions resulting in nerve disturb nce and repulsion.

PLANTING NOTES.

COFFEE SHADE TREES.—Sun-dried Erythrina Lithosperma loppings, etc., contain per ton:—61·50 lb. Nitrogen; 57·38 lb. Potash; 14·92 lb. Lime; 13·68 lb. Phosphoric Acid.—*Planting Opinion*, July 10.

COFFEE: COST OF HIGH CULTIVATION.—While high cultivation is eminently desirable, it is also extremely costly. We have been told of a certain Nilgiri estate that spends over R300 an acre in cultivation and manuring, and finds it so profitable that even these rates are likely to be exceeded. —*Ibid.*

MR. PATRICK GEDDES'S PICTURE OF WHAT MIGHT BE DONE IN CYPRUS, in the June *Contemporary* is well worth reading. Mr. Geddes, who has been trying to provide for Armenian refugees in Cyprus, shows in glowing periods how a little trouble and skill would open the springs choked by calcareous deposits, restore the dying silkworms, make the island a garden, and establish a school of colonial management whose lessons would be of value throughout the empire.

JAPANESE BAMBOO.—Bamboo and bamboo wares constitute an important item in the miscellaneous export commerce of Japan. Bamboo for shipment abroad is grown in districts adjoining Kyoto and Osaka, and in Shikoku, and in Kyushiu, the varieties differing somewhat, according to localities. In Hiroshima the black and the spotted varieties grow; the former is produced in Kochi, also in many parts of Kyushiu.—*Indian and Eastern Engineer*, June 12.

WOOD FLOUR.—Messrs. Esdaile & Co., Ltd., of City Saw Mills, Wenlock Road, London, N., have obtained from the Central Cyclone Company, Ltd., the monopoly for grinding sawdust and waste wood products for the manufacture of wood flour. This material is very extensively used in the manufacture of linoleum, floorcloth, dynamite, &c. Thousands of tons are sold annually, reduced by the pulverizers of the abovementioned company. —*British Trade Journal*, June 1.

LOEFFLER'S BACILLUS IN SAMOA.—In 1896 a firm at Samoa, in the Pacific, imported a supply of Professor Loeffler's "mice-typhoid-bacillus," with which to exterminate rats on the coconut-plantations. Rats, mice, and flying-foxes (*Pteropus Samoensis*) were inoculated with no very certain results, except in the case of the flying-foxes; but after a time an extraordinary epidemic of chicken-cholera arose among domestic fowls, and dogs also died in great numbers. It has not been ascertained for certain, however, whether these facts were due to the "mice-typhoid-bacillus" or to the unprecedentedly hot and dry weather.—*Chemist and Druggist*, June 5.

TWO TEASPOONFULS OF QUININE were taken by a woman recently. A fit followed, and it required the close attention of a doctor for several days before she was quite out of danger. The case is reported in the *Lancet*, page 1202, and we mention it as one of the results of cheap quinine, as it was worth 6d. she took. In the old days 6d. worth would have done her no harm. —*Chemist and Druggist*, June 5.

COCONUT CROPPING NORTH OF CHILAW.—The Rajakadaluwa district continues to show its fitness as a rich coconut-producing district, wherever due care is taken in cultivation. We have the following return for a typical garden of about 160 acres of palms;—

"Last picking aggregated about 37,000 good nuts, making total for the 12 months 107,000 against an estimate of 65,000. Very satisfactory this for a plantation of 8 to 8½ years and proprietors are to be congratulated. How does this yield compare with that of Kandongamuwa"?

COFFEE NOW AND IN DAYS OF OLD.—A retired Ceylon merchant writes with reference to our remarks on the change which has come over Coffee:—"I agree with you in all you write about coffee. Before Free Trade between the thirties and forties, Jamaica chiefly and Berbice with a small addition to Mocha supplied the whole of the coffee consumed in Great Britain. There was some little Ceylon native also home called "Elephant trod" unpicked full of blacks and almost triage. Duties were then differential."—"Elephant trod" as a term applied to native coffee, is new to us.

JAVA CINCHONA.—The annual report of the Planting Company "Pondok Gedeh" of Java, for 1896, which has just been published, shows that the year has been a good one for the concern. The ordinary shareholders will receive a dividend of 7 per cent. (the distribution for 1895 was 4 per cent.), and a larger sum is carried forward than in the foregoing year. With regard to cinchona, which, (next to tea and coffee) is the principal product of the company's land, it is said that the net profit on that culture was 16,304 f. (about 1,360*l*.). There are still about 200,000 trees left on the company's plantation.—*Chemist and Druggist*, June 5.

PRICE'S PATENT CANDLE COMPANY (LIMITED) attained its Jubilee on Saturday last, May 29, and we read in a home paper of its interesting connection with Ceylon as follows:—

On May 29, 1847, it acquired, for 250,000*l*., the business of Edward Price & Co., which had been established in 1830 by Mr. William Wilson and his partner, Mr. Lancaster. That business was formed for the purpose of working an acquired patent for the separation of coconut oil into its solid and liquid constituents, with a view of utilising the former, coconut stearine, as a substitute for tallow, and the latter, coconut oleine, as a lamp-oil. In consequence of the difficulty of obtaining regular supplies of coconut oil, Edward Price & Co. established first a branch house in Ceylon for the purchase of the oil, and ultimately steam-mills for crushing coconuts, in order to extract the oil as the new material for their London works. More capital being required for their operations in Ceylon for other purposes, Mr. Lancaster sold his share to three capitalists—Messrs. Cockerell, Brownrigg, and Larpent, and with these as sleeping partners, with the addition of Mr. Brice Pearse, in 1845, Mr. Wilson continued to carry on the business until it was acquired by Price's Patent Candle Company (Limited) in 1847. Mr. William Wilson became the first chairman of the new company, and his two sons managing directors. One of these, Mr. George F. Wilson, F.R.S., is still a director of the company. The company have published a very interesting memoir of their fifty years' history, beautifully illustrated by reproduced photographs.

THE REVOLUTION IN TREE PLANTING.

(*From the "Mildura Cultivator," United States.*)

About eight years ago it was announced by Mr. H.M. Stringfellow, a Texas orchadist of large experience, that the theory and practice of tree planting, as handed down from time immemorial, were wrong, and that instead of a tree heing the better for having numerous roots when reset, the very opposite was true. Mr. Stringfellow then gave a full history of how he happened to hit upon this truth as well as a detailed account of various experiments upon a great many kinds of fruit and shade trees that seemed to demonstrate the truth of his statement. The statement did not at that time meet with much support, so absurd did the idea of cutting off all the roots of a tree seem to even the most prominent horticulturists. Mr. Stringfellow, however, " stuck to his guns," and in a recent issue of the Texas *Farm and Ranche* he again dealt with the subject, and at the same time he gave the experience of other horticulturists in support of his contention. The article is reproduced below for the consideration of our readers:—

" Though I have written to quite a number all over the country, the invariable answer has been, 'while such treatment may succeed with you, it would he out of the question here.' The fact is we inherit our opinions and ideas, just as well as the peculiarities of our bodies and so true is this that the contrary of their beliefs is positively unthinkable to many men. An instance of this came to me in a letter from one of our most progressive nurserymen. He writes: 'I have been practicing close root pruning with perfect success for some years, and yet my father, who is 70 years old, and sees the good results every year, won't admit them, but persists in saying that "if the roots were not necessary they wouldn't be put there.'" So firmly indeed has this long root fallacy become embedded in the human mind by ages of practice, that even a man of Charles Downing's eminence in horticulture declares in his great work that the 'ideal transplanting' would be to take up a tree with its roots entire. That this would be absolutely the very worst form, anyone can easily demostrate for himself. Let him take, for inscance, two peach or other tree seeds, and plant a few inches apart in, say, a ten inch pot of good rich soil. At the end of next year let him take them out and carefully shake off all the soil from their roots and plant side by side in the open ground. Let him spread out in a large hole all the roots of one tree according to tbe inherited regulation method, aud cut back all roots on the other to about one inch, and the top to one foot—just enough to allow of its being stuck down about six inches, like a cutting. Treat alike, and in two years the root-pruned tree will be many times larger than the other. And here I wish to say, very particularly, that the great superiority of close root pruning is not always so apparent the first year, the tree giving more attention to striking deep roots than to makiug top. Even for several years, we all know, trees as ordinarily set do well, hut this is due to the fact that a large amount of root is removed even then.

" But a comparison with these will prove that when the strain of fruit hearing comes, the closc pruned tree —with its roots deep and strong, out of reach of the plough, winter's cold and summer's heat and drought—will stand up for many years, giving good crops long after the other, with its lateral and surface system, has broken down and died. How else are we to account for the early decadence of our latter day orchards? The planter in his haste for fruit demands big trees with plenty of roots and top, to support which, and to make them live, the nurserymen often transplants several times. This gives a mass of fibrous roots, which will undoubtedly—if the season is good—make the trees live, hut practically dwarfs them and destroys their future usefulness. While Samson lost his strength through having his hair cut off, a tree is for ever weakened by leaving its 'hair' roots on when set, for it seems then compelled to re establish itself by emitting new fibrous roots entirely from these. This results in a permanent lateral and surface system. Sink a spade around such a tree a year—or even two—after planting, and a slight pull will lift it from the ground; a short root-pruned tree will resist any effort. The whole theory of the latter method is simply copying Nature. She starts her tree from seed, with neither tops nor roots, and universal experience has shown that these and trees grown from cuttings (which are practically seed) if never moved, are the strongest, healthiest, longest lived aud most productive.

" The advantages I claim for this method—over the all-important one of giving better trees— are: First,

" AN ENORMOUS SAVING

to the nurseryman in digging his stock which now must be taken up with roots a foot or more long. Second, an equally great saving in packing. Insteed of great bales of tops, roots, moos, bagging and rope, and labour of puttiug up the same, or large hoxes containing thousands of pounds of the same useless dead weight, a thousand root and top pruned trees could be packed in a medium-sized, tight, box, with a layer of wet moss in the bottom to maintain a moist atmosphere, and shipped with perfect safety around the world.

" THE SAVING TO THE BUYER

will be even greater. As an instance, several years ago I ordered 5,000 grape vines from California, and wrote specific directions for root and top pruning as well as packing, and offered to pay for the extra pruning, the hox to he sent by express. The nurseryman settiug me down for a crank or fool packed the vines—top, roots and all—in three immense bales weighing 1,300 lb., for which he got a special rate, and yet they cost me £14 charges. I pruned and packed them in a single bale weighing 127 lb., and shipped them 250 miles, after which they were set by being simply stuck down into well pulverised ground and tramped, the whole operation taking but two days. Every vine grew, and next summer—the third year—I expect to ship grapes by the car load. It would be hard to estimate how many thousands of pounds are annually paid by planters to railroad companies in charges on worse than useless tops, roots and packing.

" HUNDREDS OF POUNDS WILL BE SAVED IN THE PLANTING.

Instead of large holes and spreading out of roots, and working in the soil by hand, as now practiced, the planter will prepare his ground, stretch a strong line with tags tied at the right intervals, make a small hole with a dibble a couple of inches in diameter, stick the trees down the proper distance and when the row is doue, turn back and tramp thoroughly. The tramping is very important, I will now repeat.

" DIRECTIONS FOR ROOT PRUNING.

Hold the tree top down, and cut all roots back to about an inch, more or less, sloping the cuts so that when the tree is set the cut surface is downwards. Experience has shown that these roots are generally emitted perpendicularly to the plane or surface of the cut. This final pruning should be done shortly before planting, so as to present a fresh surface for the callous to form. If trees are to he kept some time, or shipped by a nurseryman, about two inches of root should be left the planter to cut back as directed when the tree is set. About a foot of top should be left. More or less makes no difference. If the tree is well staked, three feet may be left without diminishing the growth much. I have had six foot trees, well staked, to grow finely, but to avoid staking and to secure a new straight body it is best to cut back short.

" Let all shoots grow until a foot or so long, when the straightest and best should be left and all others rubbed off.

" I could give the experience and endorsement of quite a number of orchardists who have practiced this method with uniform success, but space will not allow me to mention hut one. He stands on the topmost round of the horticultural ladder, and as far as I know is the only man whose mind is so unbiassed by the prejudice of preconceived opinions, and his perceptions so intuitively correct, that as soon as the method and reasons for it were presented, he saw its truth. Without waiting for the slow

demonstration of experience, he at once put it in practice on his great 900-acre peach orchard of 100,000 trees, which he was about to plant in Georgia. I wrote him recently as to how it turned out. Here is the reply :—' Dear Sir, I am glad to state that the close root pruning, which was practiced when planting our entire orchard of one hundred thousand trees at Fort Valley, Georgia, proved to be the most successful operation we ever practiced, less than one-half of one per cent. of the trees failing to grow and all making the most vigorous and even growth I have ever seen in any orchard in America. The orchard is now three years old, and gave us an enormous crop of fruit this past season. I am thoroughly in favour of this system of root pruning.—Yours very truly, J. H. Hale.'

" And now in conclusion, in view of the fact that my individual effort of eight years have amounted to practically nothing, the question is how to bring about in the general handling of trees this radical but needed reform. I see but two ways. The first through the medium of the nuseryman and his catalogue, and the second through the bulletins of the experimental stations. Quite a number of nuserymen are now practicing my method exclusively, and with perfect success, in all their nursery transplanting operations, but they dare not advise the people to adopt it for fear of being accused of trying to induce them to kill their trees, so as to sell them more next season. Mr. Hale is the only exception I know in the whole country who comes out boldly for close root pruning. Now let all the rest make mention of the subject in their future catalogues ; next let the State experimental stations make ex; haustive experiments on all kinds of trees, vine- and small fruits, planting some with mere stubs of roots—a half-inch—and others with five, ten, fifteen and twenty inch lengths, setting enough of each to allow of taking up some every year to demonstrate at once that beyond a length of two or three inches the quantity and size of the new roots is invariably in an inverse ratio to the amount of old roots left on. The more and longer the old, the less, more lateral and weaker the new ones.

" Let them subject trees of different ages and length of tops to four or five years of the same treatment, and the result will be the same. The older close root pruned, even with four-foot tops will, if staked, quickly re-establish themselves on strong, deep, new roots and make fine trees, while the same age long root ones will become permanently surface rooted and dwarfed for ever. No amount of fertilising or cultivation will ever make them catch up".

"REMOTENESS OF THE RUBBER SUPPLY"—is the heading of an interesting paragraph in the *India Rubber World* of June 10. It runs as follows :—" An illustration of the remoteness of the forest end of the crude-rubber trade came to light through the death in London, recently, of Francisco Saurez, an India-rubber merchant in that city, and consul-general for Bolivia, of which country he was a citizen. The estates on the river Beni from which he received rubber are 3,000 miles from the seaboard, with such slight means of communication that months are required for a letter from London to reach Mr. Saurez's relatives remaining there. The course of business was for rubber to be shipped to England against bills accepted by Mr. Saurez. After his death bills continued to mature until there was a large mus which could not be honored without the appointment of an administrator. Besides, a large quantity of rubber lay at Liverpool waiting to be cleared, and many persons were anxious to have arrangements made for carrying on the business. Application having been made in proper form, Mr. Justice Barnes named a chartered accountant as administrator to superintend the business until the next-of-kin can be communicated with."

JAVA AND CHINA VERSUS INDIA AND CEYLON TEAS.

In the *Indische Mercuur* of 22nd May is the following letter which is worthy the attention of Ceylon tea proprietors :—

The Soekaboemi Agricultural Association, Soekaboemi, Java.

Gentlemen,—We are much obliged by your sending us the report of the general meeting of your Association, held on 14th Feb. last.

With regard to the article *tea* we noted with great interest your interesting communications, and we share your optimistic opinion regarding the vitality of the product of Java and the bright prospect that it has in the consuming countries, through further improvement of the intrinsic value. The consideration given to the improvements which are constantly taking place in tea machines, the attention paid to the soils, and what manure yields the best results, convince us that they must have great influence upon the quality of this product.

Although we do not wish to arrogate to ourselves the competence to pose as crftics, we cannot refrain from giving you our opinion regarding some passages in your annual report.

You write :—" But care must be taken in time to give to the Java tea cultivation, the extension of which at the moment it is so susceptible, in order that we may supply with our expected increasing reports of Java teas a portion of the 40 millions of half-kilos of tea per annum from China, which will gradually disappear from the World's markets."

We ask ourselves : Is the tea cultivation in China then really doomed to a universal decline, simply and solely because Great Britain by its notorious " puffing " system partly damaged it to supply consumption through other channels ? According to the enclosed statistics, covering the first four months of 1897, it seems that the deliveries of China tea in England amounted to 12,444,900 lb., against 12,979,550 lb. in the same period in 1896, from which we may assume. that the very great falling-off, visible in former years, has at least for the moment stopped. We have the honour to send you, in further elucidatoin of this point, some graphic statistics, appearing in the *Beiblattzur Kolonialwaran Zeitung*, from which it appears that the consumption of China tea in England during the last few years shows more stability.

We notice an undesirable factor, according to a statistical statement also given therein the steady—and noteworthy—*increase* of the consumption of China tea in Germany, which we allege in the sentence occuring in our French market report for 1896 sent to you : " La consommation de thé de Chine fait encore tonjours beaucoup de progrés sur le continent de l'Europe et a gague depui l'année passée surtout en Allemagne, en Autriche, en Misse et dans plausieurs autres pays."

According to our opinion the consumption of Java tea is closely united with that of China tea, and the former class is better suited than any other kind for mixing with the latter, which if drunk by itself is far too thin in liquor. It is just in this that in our opinion lies the strength and future of Java tea, as being a characteristic by which the latter enjoys the advantage over its keenest competitors (Ceylon and Assam tea) with the tea blenders of the continent.

Java tea cannot hope for salvation from Great Britain in a fraternal reception by the side of Assam and Ceylon tea. Such a thing might be possible did no " puffing " " system exist ; and this characterizes the whole English community, from Mincing Lane even to Johannesburg. They are very willing in London to take notice of Java tea as a surrogate (with or without reason ; since Java is not a British colony), but especially if the chest is marked " Assam " ! The great indifference on the part of the British towards Java tea we could demonstrate to you and confirm by many proofs.

Much rather do we regard Java tea as "concurrenzfähiger"—*competitor*—of the British colonial product, were it solely from a dietetic point of view on account of the smaller amount of tannin. We have in view on Amsterdam or Rotterdam as emporium and universal market for Java tea *in competition* with a London as Assam and Ceylon tea market. It will not want for interest and active measures in this country, and the Dutch tea market will undoubtedly, with an energetic and united advance, be able in the future to reckon on a good reception from the continent, where the consumption of tea is each year spreading so much. We quote *inter alia* from the report of the Dresden firm of R Seelig and Hille: "Java-thés finden nur in unteren Preislagen bei uns Verwendunge, Konkuriren aber schon in besseven Qualitäten mit den besten Indischen Garteu—Markeu!" [Java teas with us are employed only in low priced grades, but in better qualities compete with the best Indian garden marks.]

Whilst we ask you kindly to accept these opinions for what they are worth, we also presume to draw your attention to what may possibly be in the future a dangerous competitor of Java tea in the form of the "New Process, machine made, China Tea," imported to London. An article in the *Indische Mercuur* of 19 December last regarding this new product led us to place in the hands of the Editor the samples sent to us by our London broker for report, and these in the view of those interested, were a small contribution to a large supply. We observe that these teas were shipped from Foochow, whilst in the preceding week a parcel of the same merchandise was sold, which come from Hankow. We have pleasure in sending you herewith the samples of these parcels as also the sale catalogue, being the first machine-made Hankow teas. Meanwhile we remain, gentlemen, with much respect,

WED. J. VAN DER CHIJS & ZOOU'S
TEA DEPARTMENT,
12 May 1897. J. VAN DER CHIJS.

PLANTING NOTES.

SHIKARIS who suffer from mosquitos will be glad to hear of a protection which is warranted on Consular authority to be efficacious. It is the essence of "Mentha Pulegium." On going to bed apply this sparingly to the face and hands and the mosquitos will not trouble you. So the British Consul at Naples declares. The remedy has not a pleasant odour, he admits, but it produces no evil effects and affords relief unspeakable.—*The Asian*, June 22.

A COMPETENT BRAZILIAN AUTHORITY on coffee, states that although the drop in prices, as compared with normal quotations is about 40 pe cent, the prices in export markets afford the planters a profit of 80 per cent. on the cost of Production, and if this return is not adequate to the requirements of the planters, the cause must be found in the maladministration of the estates, few of which are personally superintended by their owners.—K. J K. in P. *World*—[Who is the competent authority? We doubt his reliableness.—ED. *T.A.*]

THE FUTURE OF RUBBER.—The following is rather an important announcement for rubber cultivators, because the prospectus received by us by a previous mail was quite formidable as to what the proposed Company was likely to do in collecting rubber in West Africa with its £200,000 of capital. Now the proposal has collapsed:—

The British Indiarubber and Exploration Company, Limited.—The directors having deemed it inexpedient to proceed to an allotment of shares in the above Company, the moneys subscribed by applicants for shares and debentures will be returned in full to the applicants.—*Daily Chronicle*, June 5.

THE COFFEE SITUATION.—Thirty years ago, writes the *American Grocer*, the total consumption in Europe and the United States was 375,000 tons; today it reaches 650,000 tons, a gain of over 73 per cent. But while this gain covers thirty years, we have to recognize that during the past three years the annual deliveries in Europe and the United States do not average any larger than for the nine years 1880-1888, when they were 658,066 tons annually. The previous era of low prices during which consumption steadily increased ended in 1886, followed by a rise in 1887 to 18·11 cents as the yearly average cost of fair to prime Rio, against 10·76 cents in 1886 and 8·96 cents in 1885. Since then high prices have ruled, stimulating production in Mexico, Central America and South America, the effect of which was not felt until last year and still more this season. The total deliveries for ten months are reported by the Coffee Exchange at 10,095,554 bags. It is probable that the year's deliveries will be close to 12,000,000 bags, making the heaviest on record. The visible supply of the world, May 1, 1897, was 4,348,799 bags, an increase from July 1, 1896, of 1,760,606 bags. Increased consumption, with increased stocks and declining prices, are proof of overburdening supplies. If the 1897-98 crops are as heavy as those of 1896 97, we may see lower figures than any ever made, in spite of improved business. Which-ever way the trend is, it is certain that coffee is low enough to warrant liberal buying and generous stocks.

"COFFEE NO LONGER KING IN THE EAST."—So we ventured to state some time ago in contrasting the position of our old staple in the East with what we see of it in Brazil, Mexico and Central America; and our position is strictly accurate in every respect. Even in Java, coffee is far below its old status, while tea, cacao and cinchona divide attention. Any planting in the Straits or Southern India has as yet done nothing in crops and exports to retrieve the position. But a young and rather rash planting contemporary in India challenges our statement after a fashion peculiar to inexperienced youngsters:—

"Extremely elementary notions must our contemporary have of the conditions that obtain in South India, where there are about 15 acres of coffee to every one acre of tea. It would probably surprise it to learn that the last six years or so have witnessed an unprecedented rush for coffee land and so-called coffee land (thought formerly only fit for grazing) in every district—barring Travancore—in Madras."

The "chaff" follows. A "six years' rush;" and yet three years or at most four bring coffee into bearing. How then do the export figures for India bear out the above statement:—

TOTAL COFFEE EXPORT FROM INDIA:—

1871-2	..	507,000 cwt.
1881-2	..	351,981 "
1891-2	..	311,864 "
1895-6	..	290,902 "
1896-7	..	210,707 "

No sign of "a six years' rush" in these figures, but rather of a steady decline.—Here again is the figured picture which justifies our statement that "coffee is no longer king in the East:—

	cwt.		cwt.
Ceylon (max. annual export)	1,000,000	now	40,000
India " ..	510,000	"	220,000
Java, Straits and E. Archipelago ..	2,000,000	"	1,200,000
	3,500,000		1,460,000

While the "West" which 20 years ago produced not much more than the "East," nows produces over 12 million cwt. or eight times as much as the "East."

CACAO CULTIVATION IN CEYLON.

At the time when the fear of overproduction is the strongest sentiment prevailing among tropical planters, it is refreshing to find one exception, at least, and that is in respect of the cultivation of Cacao in Ceylon. On the principle of the survival of the fittest, we would fancy that proprietors not afflicted with disease in their shrubs or trees,—or only with such passing attacks as Cacao is subject to, above all products up to a certain age,—should feel increased confidence in the value of their properties as they saw the discouragement given to further cultivation around them. But the cry has been not to say too much of prevalent troubles lest the value of property should be depreciated. There is no fear of that, after the letter Mr. J. R. Martin sends us (see page 125). Profits ranging from 12½ to 18 per cent on the capital invested ought to be good enough even for the exigeant tropical planter. And when such are got from crops ranging from 2 to 3 cwt. per acre, it is evident that there is really much encouragement to turn Cacao planter; for such crops—returning all the husks to the soil—cannot be called an exhaustive one. Now as regards the pests to which Cacao is liable, we should like to know if Ceylon planters have really any different experience from their brethren in the Far West. The testimony coming from the Guianas—British, Dutch, and French—from Trinidad and Mexico, goes to show that no more troublesome product to the planter, in reference to the number and variety of its enemies, exists than Cacao, up to the time the trees are ten years old or so; but after that, few if any give less trouble. The enemies disappear or the trees are strong enough to resist them. Now, we know that there have been individual experiences in Ceylon which contradict this Western deliverance and we know also that "poochies" even now in some parts are injuring not only 10 but 15 and up to 20 years' old trees. It is clear, therefore, that the sooner Mr. Green is put to work as Entomologist, the better; and we should say he ought to begin by visiting and conferring with the planter of longest experience in each district:—with Mr. Martin in Matale North visiting the adjacent estates; with Mr. Van Der Poorten in the Kurunegala side visiting the Polgahawela division; and with one or other in Dumbara and Wattegama districts. In this way, the Entomologist could not fail to see and learn a good deal that should help in deciding as to the wisest course to pursue in reference to a systematic examination and report on local cacao enemies, their operations and the way to check or get rid of them. The subject of cacao cultivation is of so much interest at present that we shall treat it further later on.

INDIAN AND CEYLON TEA.

ANNUAL REVIEW.

38, Mincing Lane, 9th June, 1897.

In accordance with custom we take the opportunity of the completion of another period of twelve months, dating from June 1st, 1896, to publish in detail the figures relating to Production and Consumption, and the development of Home and Foreign trade;—together with such information respecting the results of the Indian crops sold in London as by the courtesy of our friends we are enabled to print.

There is much in these figures encouraging to all who are interested as Producers in the growth of the trade in Indian and Ceylon Tea. The continuous increase in Production has been accompanied by a steady growth of Consumption; not, indeed, at home, sufficient to absorb the increase in supply, but still, such as to maintain prices, speaking generally, at a fairly remunerative level; while abroad, sufficient progress has been made to exercise an influence upon value, and to justify confidence in a wider development in the future.

It is obvious that so great a decrease in the use of China Tea at home having *already occurred*, and its place having been *filled* by British-grown tea, the *rate* at which consumption of the latter grows will not be rapid in the future, unless something exceptional should happen to stimulate it. The following figures illustrate this:—

Proportions in which the different growths were used in the United Kingdom.

	1891-2	1893-4	1895-6	1896-7
Of China, &c. ..	21%	13½%	11½%	10%
,, British-grown tea	79 ,,	86½ ,,	88½ ,,	90 ,,

The ability of the home market to take larger quantities is, therefore, becoming mainly dependent upon the greater consuming power of the country in the aggregate. So far, this has shown continuous and steady growth; due, we think, apart from the increase in population (1) to the facilities given to the public, by purveyors, for obtaining a cup of tea of good quality is now obtainable from all the principal vendors. It is not an exaggeration to say that to a large part of the population the good tea of India and Ceylon has become an almost necessary article of diet, cheaper and more exhilarating than any of its rivals.

But these causes have now been for some time in operation in London and other great centres, if not in the country; and it would, therefore, be unsafe to reckon upon home consumption expanding in the future as *substantially* as it has for the last two years. In view, therefore, of the increased supplies expected in future years, the need of turning to the large and, as yet, almost unopened outlets for our teas abroad becomes more imperative than ever;——and whichever means of finding the way into new markets may prove most effectual, there is scope for operations varied in method and wide in application. As pioneers in this work, those representing the Planters' Associations have done good service; for their distribution of information respecting the production and preparation of our tea is in itself of the highest value——but in the long run, and for large results, reliance must be placed upon the ordinary channels through which trade flows. It is, therefore, opportune that the system of sending out tea as a proprietary article, under a registered title, has been so widely adopted, as it is perhaps more conducive than any other to place our teas where they were unknown before and enable consumers to obtain a regular supply.

The progress made in trade abroad, through the medium of London, is shown by the following figures relating to Exports from the United Kingdom:

Out of the total ..	1891-2-3.	1893-4.	1895-6.	1896-7.
China, &c. ..	80 %	76½ %	62½ %	59 %
British-grown tea ..	20 ,,	23½ ,,	37½ ,,	41 ,,

In conjunction with the increasing shipments to Asia, Australasia and America direct from Calcutta and Colombo, these statistics prove that progress is constant, if a little slow.

Wide fields lie open before us —— and the possibilities of the future, if our taste for tea were to extend to those whom we influence, find a vivid illustration in the following figures:

The British Race in the United Kingdom takes annually	228	million lb. of tea. equal to 5¾ lb. per head per annum.
,, ,, ,, in the Australasian Colonies annually	28	
,, ,, ,, in the Dominion of Canada annully	22	
That is to say, about 48 millions of people take	278	

Whereas, in the United States of America, 65 millions of people use annually less than 1½ lb. per head.

In Russia 100 millions of people use annually less than 1 lb. per head.

In Germany 53 millions of people use annually less than ½ lb. per head.

In France 38 millions of people use annually less than 1-32 lb. per head.

Moreover,—is there any reason why a sustained attempt to popularize their native product among the countless millions of *India itself* should fail? Can no methods be devised for putting tea within their reach at a price and in a form which might eventually lead them to use it as a beverage as freely as the Chinese and the Japanese use the produce of their soil?

The successful development of the system of selling tea under a registered name is, in conjunction with the Blender's business, transforming the methods by which the Tea Trade is carried on—and is attended by a material effect upon the London market. It has brought in a large amount of fresh capital seeking remunerative employment, and has placed ample means at the disposal of traders with progressive ideas who realize that in order to make and keep their business they must supply the public with good tea at moderate prices, and outdistance their rivals—if they can—by the merit of the article sold.

In this we find the explanation of the fact whereas most retailers say they sell less high-priced tea than formerly, they nevertheless compete keenly all through the season for the choicest growths that come to market, and pay more attention to fineness of quality, and especially to "*flavour*," than ever before.

Evidence of some movement in the *relative values* of produce correspondent to this tendency will naturally be sought for: and it will be found in the gradually widening margin between the value of the best teas and those of ordinary or inferior class, which has characterized the market during the last year or two, and is illustrated by the records of crop results printed herewith. There may possibly be another cause of the appreciation of the value of the finest growths of India and Ceylon, in the fact that their production does not, and indeed cannot, increase so rapidly as that of inferior qualities, owing to the limited area in which choice teas are produced. But there has been *no lack* of fine tea this season—the Assam and Darjeeling crops having contained a fair supply, while in Ceylon the best districts have on the whole maintained their reputation.

As regards Darjeeling, allowing for irregular results due to climatic influences, it is becoming evident that its produce tends to become intrinsically more valuable as a whole:——while with regard to Assam the high standard of quality reached and uniformly maintained in certain parts has been so noticeable as to warrant the conclusion that methods superior to those formerly followed, by slow degrees brought to perfection by skilful managers, have been adopted by others in the locality, to the general benefit of its produce.

Whether the tendency of prices to widen in their range will continue; and whether it will find expression in higher rates for "fine" or in lower quotations for "common," are questions which time alone can decide:——but inasmuch as the contributory *causes*, to which we have alluded, are likely to be permanent, it is not unreasonable to look for some movement in each direction. An influence not to be overlooked is the gradually growing enquiry for *fine-flavoured* tea from abroad, not yet sufficient to affect the value of the larger supply from India, but already so constant as to raise the level of rates for the smaller quantity produced in Ceylon.

This is a matter of deep concern to those engaged in extending the area under plant, as it has a direct bearing upon the two alternative policies, viz.; whether to open up new districts whose ability to give good tea is doubtful, or to concentrate energy and capital upon more favoured localities. As regards districts where large crops can be produced at a low cost, it is obvious that if the value of such tea as they yield should decline much more, and cost be enhanced by higher exchange or difficulty in getting labour, the present margin of profit would disappear. It would be unwise to disregard the contingency of a further fall in the value of common tea, in view of the extensions made in recent years in districts which yield it, and of the possibility that however steadily the world's demand may grow, it may not expand *fast enough* to keep pace with the output.

This is an eventuality suggesting discriminating caution in breaking new ground, and the devotion of far more attention to the quality of produce than to the outturn of a heavy crop.

There are processes involving expenditure of time and labour—*e.g.*, excessive manipulation of leaf for purposes of classification, and factory-bulking (save in exceptional cases), which are of secondary importance compared with attention paid to work in the *field* and in the *tea-house*:—sometimes, indeed, they impair values, and they seldom raise it.

The needs of the day are to bring tea rapidly to market; at regular intervals; in as large breaks as can be made; sub-divided into the four or five recognized grades; to break the leaf as little as possible by mechanical process; and to maintain the distinctive character of the garden's produce.

WM. JAS. & HY. THOMPSON.

STATISTICS.

Showing the development of the Indian Tea Trade during the past three Seasons.

Exported from Calcutta.

	1894-95.	1895-96.	1896-97.
To the United Kingdom ..	116,083,000	121,165,000	132,600,000
To Australasia	4,845,000	6,842,000	6,171,000
To America ..	584,000	1,086,000	1,938,000
To Asia and elsewhere ..	3,934,000	5,390,000	4,855,000
	125,446,000	134,483,000	145,564,000
From other Indian Ports to U.K. ..	2,000,000	2,000,000	2,500,000
Season's Re-Exports from the U.K. ..	3,680,000	3,800,000	5,250,000

Showing the development of the CEYLON TEA TRADE during the past three years.

Exported from Ceylon.

	1894.	1895.	1896.
To the United Kingdom ..	75,350,000	85,573,000	93,936,000
To Australasia	7,447,000	9,380,000	11,063,000
To Elsewhere..	1,796,000	2,807,000	3,142,000
	84,592,000	97,940,000	108,141,000
Season's Re-Exports from the U. Kingdom..	5,787,000	7,500,000	9,150,000

Showing the progress of CEYLON TEA TRADE in London:—

Season ending 31st May 1887. Imported 8 million lb. Sold in auction, 124,000 packages. Average price 1s 1⅓d per lb.

Season ending 31st May 1892. Imported 64 million lb. Sold in auction, 790,000 packages. Average price 9½d per lb.

Season ending 31st May 1897. Imported 93 million lb. Sold in auction, 1,095,000 packages. Average price 8d per lb.

LONDON WAREHOUSE RETURNS, including all kinds of Tea, for the past three Seasons, ending 31st May.

Import—

	1894-5. lb.	1895-6. lb.	1896-7. lb.
Indian ..	115,045,000	117,932,000	131,650,000
Ceylon ..	74,045,000	81,870,000	92,073,000
China ..	46,572,000	40,996,000	33,012,000
Java etc. ..	4,105,000	3,947,000	3,606,000
Total ...	239,767,000	244,745,000	260,341,000

	1894-5. lb.	1895-6. lb.	1896-7. lb.
Delivery—			
Indian ..	114,705,000	120,743,000	126,165,000
Ceylon ..	74,869,000	81,034,000	90,677,000
China ..	46,553,000	41,075,000	39,691,000
Java, etc. ..	3,938,000	3,891,000	3,800,000
Total..	240,065,000	246,743,000	260,333,000
Of which			
Home consumption	209,000,000	213,500,000	227,000,000
Export (actual)	31,000,000	33,250,000	33,300,000
Stock 1st June			
Indian ..	28,815,000	26,751,000	32,235,000
Ceylon ..	17,722,000	18,557,000	19,953,000
China ..	19,650,000	19,635,000	12,891,000
Java, &c. ..	999,000	988,000	865,000
Total ..	67,186,000	65,931,000	65,944,000

INDIA:—SOME CROP RESULTS FOR THE PAST SEASON:—

Estate.	Acreage Bearing	Crop.	Per Acre.	Avg. Price Realized 1896-97	1895-96	1894-95
District:—Assam.						
Assam Co.	9,718	3,429,510	353	1/0·46	1/0·33	1/0·55
Jokai Co.	6,185	3,466,060	560	10·80	10·50	10·80
Assam Frontier Co.	5,400	3,310,400	613	10·77	10·05	10·67
Jorehaut Co.	4,813	1,803,446	374	9·63	9·58	11·
Brahmapootra Co.	3,223	2,282,431	708	6·98	7·14	9·01
Upper Assam Co.	2,917	1,360,342	466	10·36	10·18	10·63
Doom Dooma Co.	2,767	1,851,364	669	11·75	11·21	11·94
Singlo Co.	2,530	1,307,066	517	9·40	11·30	.....
Empire of India Co.	.....	1,957,724	....	10·98	.....	.....
Majuli Co.	2,308	875,162	380	10·31	10·50	10·31
Noakacharee Co.	2,276	741,530	325	9·56	9.	10·70
Bishnauth Co.	2,022	771,689	382	9·31	9·62	10·75
Chubwa Co.	1,850	968,093	523	9·93	8·44	10·55
Jhanzie Association	2,558	967,907	378	10·33	10·19	11·42
Attaree Khat Co.	1,788	873,086	488	9·25	9·06	10·
Moabund Co.	1,856	937,885	505	9·63	10.62	10·56
Mungledye Co.	1,460	532,909	358	8·88	9·42	11·25
Choonsali Co.	1,406	274,544	188	10·10	10·56	10·78
Borelli Co.	1,301	586,804	451	9·12	8·69	11·50
Eastern Assam Co.	1,225	507,520	414	11·50	9·02	11·75
Tiphook Co.	1,020	280,010	274	9·36	10.18	10·68
Corramore Estates	1,117	305,300	273	10·25	9·25	9·06
British Assam Co.	1,105	366,476	332	10·05	8·	9·57
Tingri Co.	1,002	402,507	402	1/1·12	1/0·81	1/0·75
Moran Co.	950	567,125	597	10·59	10·83	11·65
Dejoo Co.	900	449,085	500	8·99	9·88	10·64
Rajmai Co.	917	565,970	617	9·75	10·06	11·44
Scottish Assam Co.	905	502,069	554	9·56	9·94	10·82
Nahor Rani Co.	808	390,677	471	10·50	10·25	11·94
Badulipar	720	306,000	425	11·87	8·	9·50
Mahmara	600	272,692	454	10·90	9·66	10·75
Behubor Co.	600	263,104	438	11·81	1/0·	1/0·77
Jaipur Co.	411	200,260	487	1/2·29	1/4·18	1/2·43
Shakomato Co.	470	217,650	463	10·12	9·69	10·75
Dooria Co.	470	225,600	480	10·50	9·12	10·63
Kamroop Association	430	99,000	230	11·65	11·88	11·91
Borbaree	350	134,415	384	1/0·37	1/0·25	10·44
Fstate.	Acreage Bearing	Crop.	Per Acre.	Avg. Price Realized 1896-97	1895-96	1894-96
District:—Assam.						
Dhendai Co.	409	219,755	537	1/0·31	11·37	10·56
Bargang Co.	690	321,924	467	10·25	9·75	10·30
Budla Beta Co.	400	159,436	398	1/6·26	1/8·85	1/9·93
Assam & Cachar, Cachar & Sylhet.						
Seconee..	355	144,240	406	9·12	10·	10·12
Koliabur	318	104,945	330	10·06	11·12	11·80
Gellahatting Company	355	139,060	392	8·75	9·31	11·
Borpukri Company	378	166,176	436	10·88	8·50	..
Bamgaon	317	163,327	515	10·12	7 88	9·25
Suddia Road Co.	309	121,641	405	1/5·97	1/8·30	..
British Indian Co.	1,596	877,711	550	7·19	7·10	8·46
Lungla Co.	3,550	1,865,792	541	7·59	7 80	..
Chargola Association	3,278	2,002,367	611	7·30	7·48	8.43
Doloo Co.	1,220	634,898	520	7·30	7·	9·
Borokai Co.	1,083	381,120	351	7·70	8·03	9·50
Indian Tea Co. of Cachar	1,020	647,600	635	7·47	8·31	10·56
Sephinjuri Bheel Co.	930	986,531	1,060	5·57	5·93	7·01
Jalinga Co.	677	353,207	522	7·67	7·29	8·50
Mazdehee Co.	540	225,680	418	7·89	7·83	..
DARJEELING.						
Darjeeling	2,041	603,550	295	1/0·18	11·29	1/0·53
Lebong Co.	1,547	560,000	362	1/0·48	1/0·34	1/2·40
Tukvar Co.	655	345,690	528	10·18	10·56	1/0·56
Pashok Co.	682	152,400	224	10·81	10·85	1/0·83
Mim Co.	437	75,696	173	1/3·88	1/0·37	..
Soom Co.	466	107,450	230	10·88	10·31	1/0·25
Turzum	280	66,828	238	1/6·26	1/3·61	1/7·35
British Darjeeling Co.	855	142,320	166	1/3·82	...	...
Monteviot	182	37,790	218	1/122	...	...
TERAI						
Pahargoomiah	450	167,330	371	7·61	...	..
DOOARS						
Dooars Co.	5,706	3,025,366	530	8·26	7·52	8·83
Singlo Co.	895	328,158	366	7·97	7·98	...
Empire of India Co.	...	704,165	...	6·79	...	..
CHITTAGONG.						
Futtickcherrie	391	144,860	370	8·6	8·42	9·62
	101,950	46,600,000	458	9·77	9·55	10·55

Previous Tables, included most of the Estates named above, showed the following RESULTS:—

Returns for	Acreage.	Quantity. lb.	Per acre.	Average Price. per lb.
1895-96	101,750	45,850,000	450	9·55
1894-95	97,120	42,284,000	435	10.55
1893-94	91,300	40,083,000	439	9.65
1892-93	85,780	34,900,000	406	11.30

W. JAS. & HY. THOMPSON, Brokers.

THE CEYLON AND INDIAN PLANTERS' ASSOCIATION, LIMITED.

(Incorporated under the Companies Acts 1862 to 1893.) Share Capital £120,000, Divided into 4,000 Cumulative Six per Cent. Preference Shares of £10 each, and 8,000 Ordinary Shares of £10 each.

Directors.—Charles Arthur Reiss (L. Reiss Brothers & Co.), 51, Lime Street, E.C., Chairman; Keith Fraser Arbuthnot (Sanderson & Co.), 37, Mincing Lane, E.C.; Charles Frederick Dickinson, 41, Eastcheap, E.C.; John Humphery (Hay's Wharf), Southwark, S.E.

Prospectus.—This Company was formed to carry out a Contract for the purchase, as going concerns, of the three well-known Ceylon Tea Estates, called Maha Eliya, Laxapana and Kandal

Oya, and to acquire other estates in Ceylon, India, and elsewhere, from time to time, as and when favourable opportunities occur. The particulars and acreage of the Estates now acquired are as follows:—

Name of Estate	Acreage: Tea in Full Bearing	Tea in Partial "	Young Tea & Nurs.	Cardamoms	Forest	Grass	Waste	Total Acreage
Maha Eliya, Dimbula Dt. ..	248	15	2	..	40	..	..	305
Laxapana, Maskeliya Dt. ..	640	48	128	..	89	20	96	1021
Kandal Oya, Yakdessa Dt. ..	468	26	136	4	345	3	24	1006
Acres ..	1356	89	266	4	474	23	120	2332

The Estates will be taken over as from 1st July next the Company receiving the crops and paying expenditure from that date.

For the Season ending 30th June 1896 the crops were as stated below, and the average selling prices for the year 1896 are set against them. The returns for the current season are not yet complete, but an increase upon the previous year's crop is anticipated.

	Crop. 1st July '95 to 30th June '96.	Average Selling Price '96
Maha Eliya ..	119,003 lb.	9d
Laxapana ..	260,081 lb.	$8\frac{1}{4}$d
Kandal Oya ..	176,090 lb.	$6\frac{1}{4}$d
	555,174 lb.	

The price to be paid for the properties is £81,000, payable as to £76,000 in cash and as to £5,000 in fully paid Ordinary Shares of the Company.

Under the Contract for purchase the Company have the right to require any part of the purchase-money, not exceeding £56,000, to remain on Mortgage of the estates for three years at £5 per cent. interest, with the option of paying same off at any time. The Directors propose to exercise that right now to the extent of £40,000, and, later on, to pay off that mortgage out of the proceeds of an issue of debentures to be created and secured by a first charge on the Company's estates. The estates are well equipped with factories, machinery, bungalows, buildings and coolie lines, sufficient for all their present requirements. Mr. George Greig (who has for a number of years had charge of the estates) has expressed his readiness to accept the post of Resident Manager in Ceylo , for a period of five years, and has shown his confidence in the future of the Company by applying for £5,000 in Ordinary Shares.

The tea crops for the coming season are estimated by Mr. Greig at 570,000 lb., and he puts the up-keep expenditure for the same period at R154,000.

Taking the net value of the Crop in London, after payment of freight and all charges, at $6\frac{3}{4}$d. per lb., the proceeds would be		£16,030
and deducting Ceylon expenditure, R154,000 at Ex. 1s $2\frac{1}{2}$d.		9,504
there should be a profit of		£ 6,726
This would suffice to pay on the present issue,		
Interest at 5 per cent. on Mortgage, or on Debentures issued	£2,000 0 0	
Preference Share Dividend at 6 per cent. ...	900 0 0	
Ordinary Share Dividend at 10 per cent. ...	3,000 0 0	
		£5,900 0 0
and leave a Surplus of ...		826 0 0
		£ 6,726 0 0

It is confidently expected that the returns from these Estates will go on increasing, as at present there are 89 acres of Tea in partial bearing, and 245 acres planted and yet to give crop; moreover, the Directors propose to plant up further land with Tea from time to time as occasion offers.

PLANTING AND AGRICULTURE IN KINTA, STRAITS.

(*From Mr. Wray's Report for 1896.*)

A large area of land has been taken up for coffee and other permanent crops, and a considerable proportion of this has been already cleared and planted. Mr. F. D. Osborne has a large acreage in Liberian coffee, some of which is bearing, and he has also a fruit plantation on the Tamban Road, which promises well. Messrs. Osborne, Leech and Pike—Mr. Foo Chu Chun—Messrs. C. Ephraeums and Crawford —Messrs. Dykes and Leong Fi, and Mr. W. Smith, have also promising coffee estates. Mr. C. G. Ogilvie has about 360 acres in coconuts and coffee, and Messrs. J. Paton Ker, Lutyens, and others, have grants of land on which work has not yet been commenced. Besides these large estates there are many smaller holdings belonging to Malays and other Asiatics, notably a very prettily situated estate of about 100 acres belonging to Datch Pandak, Ahkat, Penghulu of Sungei Trap.

Very little has been done so far for *padi* planting, but a great deal of land has been taken up, and there is every reason to hope that a large quantity of rice will be grown here in the near future. The prolonged drought this year shewed how necessary irrigation is for most of the *padi* land in this district, if rice-growing is to become an important industry. Some years ago Toh Muda Wabab commenced a very large scheme for the irrigation of the large area of land lying between the Pinji and Kinta rivers, and he has spent in all a sum not far short of $30,000 with, however, but partial success. He has dammed up about 650 acres of water but, owing to the work having been undertaken without professional advice, the dam is continually giving way. He petitioned the Government for assistance, and at the latter part of the year Mr. P. B. McGlashan was told off to inspect the dam and advice him as to the completion of the work, and there is now every hope that the several thousand acres of land below the dam may prove profitable. The Datoh Panglima contemplates undertaking an important irrigation scheme from the Ulu Pari, which will water a large extent of *bendang* near Ipoh. There are other places in which, by a moderate outlay, considerable tracts of fertile land can be brought under cultivation, notably in the Kamper valley.

In view of the fact that buffaloes appear to be rapidly becoming extinct in this district, it is most important that the Malays should be taught to use iploughs, and so become independent of these animals When asked why certain land is lying idle the answer is almost always the same, "We have no buffaloes."

PLANTING IN BRITISH CENTRAL AFRICA.

Mr. Israel's place at Chipende, we hear, is looking bright and healthy as usual, and a considerable area of new land is being opened up. Altogether Mr. Israel's place is a conspicuous landmark in the distance.

The Lunzc and Chiradzulo estates of Messrs. Buchanan Bros. are also looking in fine condition, and a very fair return is expected from these plantations this season.

Mr. R. H. Balfour Blair—who recently bought from Messrs. Pettitt Bros., several hundred acres of land down Nalomwa way—Eastern part of Cholo—is at present busy clearing and pitting.

Messrs. Cox Brothers have succeeded to the superintendence of Messrs. Buchanan's plantations in the Cholo district. The place, we hear is looking exceedingly well, and showing up for a handsome crop this year.—*Central African Planter*, May 12.

CINNAMON SALES IN LONDON, AND THE CULTIVATION IN CEYLON.

The particulars which have come to hand of the last quarterly Cinnamon Sales held in London on the 31st May, are not quite so satisfactory as were many of the preceding reports in regular succession. All the offerings were not sold—only about one-half, or 880 bales out of 1676 having been disposed of by auction; and the prices for ordinary bark fell from ½d. to 1d. per lb. We cannot say we are surprised at this result. Although, undoubtedly there has sprung up a better demand for cinnamon, and the advance in prices which we have recorded for the last two years is obviously due to this improved demand which, there is every reason to believe, is not merely temporary, the quantities sent forward lately were such as to cause some anxiety. Thus, the total exports for last year amounted to 2,223,865 lb. quilled bark against 2,169,527 lb. in 1895, and less than 2 million lb. during the three previous years. In chips there was some falling-off—808,502 lb. against 920,136 in 1895; but in no previous year had even 700,000 been touched! The advance must, therefore, be taken as very considerable last year as compared with previous exports; but it is when we come to this year that we find a yet greater growth in exports. Thus, up to the end of last month, practically, we sent away no less than 995,649 lb. of quilled cinnamon and 630,852 lb chips, as against the following quantities for the corresponding period of the three previous years:—

		Quills.	Chips.
1896	...	859,999	425,444
1895	...	693,891	413,292
1894	...	616,000	276,493

The progressive increase, it will be seen, is very considerable under both heads; and it is not surprising that prices have receded somewhat in the face of such heavy landings. The gradual development of a demand is one thing, and the ability to take up immense quantities thrown into the market on short notice is quite another thing. Still, there is no cause for enxiety or despondency. The falling-off in price was far from serious, considering recent successive rises; the finer qualities maintained the high prices which they had commanded at the previous sales; and all the "worked" cinnamon sold, while the prices realized for "unworked" did not compare unfavourably with those which "worked" parcels fetched.

Where there is cause for apprehension is in connection with the extension of cultivation. Past experience seldom counts when a product realizes high prices. As in gold mines, so with agricultural products—Tea, Coffee, Cinnamon—a rush follows remunerative prices; and we already hear of large quantities of cinnamon seed being sold for nurseries—especially in the Southern Province. Last year the demand for seed was strong. This year it is stronger. We do not believe that Europeans or the better educated Ceylonese are likely to rush into so sensitive a product, and one so difficult to harvest, as cinnamon; but native gardens will extend and multiply, to be followed by over-production and a drop!

A Colombo merchant sends us the report of the "London Commercial Record," 4th June, from which we take some pointed remarks with reference to the fall in prices at last sale:—

Whether the result would have been a different one had the contingent of buyers been a representative one, is a difficult question to answer, the absence of two of the principal buyers may have had some weakening effect on prices, yet we are inclined to believe that their presence would have made little difference, for the dulnoss just prior to the sales may be accepted as a fair criterion of tho feeling of the entire trade. Holders here were greatly upset by the arrival of numerous consignments, and seemed to have been determined from the very first not to support the market, in order to nip in the bud a a trade which, if at all encouraged, would quickly develop into a dangerous opposition to the existing manner and custom of dealing in Cinnamon. In this respect holders here have acted quite correctly, for there is not a more dangerous enemy to the steady, legitimate business than the swamping of our market with cheap and low native consignments. We have had occasion to witness their nefarious results on several markets, and we are glad to see that at least in the present instance the prices relised are not exactly encouraging to the consignors. Cinnamon, after all, comprises but few supporters, and it should therefore not be a difficult matter to effcetually oppose the introduction of the consignment system on a large scale. The first step has been one in the right direction, and we are satisfield in our own mind that the account sales forwarded to Ceylon showing short proceeds will have a most cooling effect on native shippers. Some efforts has been made in certain quarters to stem the tide of declining values by spreading the rumour that an important house of shippers was anxious to depress the market in order to facilitate the covcrture of their blank engagements, but as this rumour did not receive any support or even confirmation, its effect upon thc minds of the trade was *nil*. In fact, in some instances this ill-found rumour resulted in an almost contrary effect than anticipated by its originator—it helped to depress priccs. Colombo in the meantime appears to have been little affected by the drop in our market, which, however, is not surprising, considering that the old season is at an end and the new not yet begun; but there can be little doubt that as soon as supplies begin to arrive over there on a large scale, prices, not being supported by a European demand, will steadily come down, and will adapt themselves to the lcvel of our range of values. On the 1st of this month the new standards of usual assortment came into force, and their working will be interesting to watch, for the opinion on the advisability of their adoption still differs considerably. So far shippers have asked ¼d per lb. more for the guarantee of "equal to standard" over the usual fair merchantable, but this difference we feel sure is only attributable to the uncertainty which prevails as regards the working of the standards, and not to an appreciable difference between the old and new guarantee of quality. Practical experiments alone will show whether the adoption of standards was a wise step to take or not.

DEAFNESS. An essay describing a really genuine Cure for Deafness. Ringing in Ears, &c., no matter how severe or long-standing, will be sent post free.—Artificial Ear-drums and similar appliances entirely superseded. Address THOMAS KEMPE, VICTORIA CHAMBERS, 19, SOUTHAMPTON BUILDINGS, HOLBORN, LONDON.

COFFEE IN SERDANG, SUMATRA.

An old planting friend writes:—

Serdang, Sumatra, 15th June:—Unprecedented rain these last days. Roads are terrible. Health good and labour plentiful. Coffee planting is making rapid progress, and weeds are also taking advantage of the fine growing weather. The rinderpest has at last abated, and our roads are once more opened for bullock traffic, having been closed for over two months. Difficulties of transport during this period have been beyond a joke. Crop is ripening up rapidly and coming in hand-over fist. One estate is said to be picking 17½ pikuls per acre from it's four years old coffee, *i. e.* over a ton an acre. This makes one's mouth water. I doubt if British India, Ceylon or Java has ever equalled it. It seems that Serdang is not to be the only coffee growing district of the East Coast. It is being planted in parts of Deli and Langkat, and I hear that some who have come too late for land in Serdang are opening in Assahan.—*Singapore Free Press*, June 22.

COCONUTS AND RICE IN THE EASTERN PROVINCE OF CEYLON.

The highly satisfactory results which are seen on all sides of a vigorous irrigation policy which has been steadily carried on for the last thirty years, and the large area under coconut cultivation, call for early action on the part of Government to improve internal communication and facilitate transport of produce. Every encouragement should be given towards the improvement of the steam service on the lake. Among the schemes mooted for the development of the resources of the Province, and one which deserves favourable consideration, is the construction of a light railway from Batticaloa to the foot of the Madulsema hills. The country which it would traverse presents no physical difficulties, for the first 30 miles is almost a dead level and the remaining 25 miles slightly undulating land. A railway like this would enable the ricegrower to transport his produce to the Uva estates and sell it there at a cheaper rate than the price paid for the imported rice.

The extent of land sold last year amounted to 3,886, the highest on record for the last ten years, as will be seen from the annexed statement:—(We quote three,)

Year.		Extent sold: A. R. P.		Amount sold for Rupees.		Average Price per Acre. R. c.
1894	..	4,196 0 25	..	80,146	..	19 10
1895	...	4,584 1 24	..	77,797	..	16 97
1896	..	4,886 2 32	..	72,871	..	14 91

Also the following from Mr. Lushington:—

The larger blocks were bought chiefly by Europeans for coconut planting, which appears to contributes so much towards the prosperity of the country. Very little new land has been opened for paddy, probably because the extent already brought under cultivation is so enormous as to leave little for further extension, unless new irrigation works are provided. In no part of Ceylon has irrigation produced such successful results as it as here.

Annexed is a statement of land under paddy and coconut cultivation:—

			Acres.
Paddy	..	..	67,377
Ceconut	..	..	19,200

NEW AREAS OF CULTIVATION.

The first attempt to take up coconut cultivation on a large scale was mado during the year past, when three blocks of land aggregating 504 acres were purchased for the purpose of growing coconuts. These lands are situated at Uppu-aru near the mouth of the Mahaweli-ganga, and seem to be well suited to coconut growing Unfortunately, one of the purchasers, Lieut. Maloney, has left the Island. There is much land suitable for coconut cultiuation in the distriet, and I hope to see a considerable extension of this produce within a few years. In addition to these large blocks of land, 152 lots aggregating 551 acres were sold by the Crown, chiefly for paddy cultivation, mnch of the land sold being irrigated by Kantalai tank. Three acres were granted on payment of half improved value, and 55 acres were settled on certificates of quiet possession.

The Cost of Citric Acid.—Messrs. Nascio, Aveline & Co., manufacturers of citric acid write from Massina that the present selling-price of citric acid is barely equal to the cost of producing the drug. They work it out this way:—The theoretical yield of one pipe of conc. lemon-juice (of 108 imperial gallons) at 64 oz. of acid per gallon is 432 lb. But in practice it is from 15 to 20 per cent less, according to the season and the expertness of the mannfacturer. There is also a trade-discount given on citric acid, to meet which a further 5 per cent must be deducted from the yield—*i.e.*, in all 20 per cent, or 108 lb., leaving a net result of 324 lb. At £12 5s per pipe this makes the prime cost of crude citric acid 9d per lb. The cost of manufacturing, packing, &c., is close upon 4d per lb., making a total of 13d per lb., or, say, the same as the present selling-price.—*Chemist and Druggist.*

Manchester Geographical Society.—At a meeting of this Society Mr. A. T. Wardrop, Cnstoms and harbour officer for the port of Sandakan, the chief seaport and capital of North Borneo, gave an address on "North Borneo, the new Ceylon." He described the country as wonderfully rich in natural products, and as likely soon to become an important centre for trade. Cotton, coffee, tobacco, and cocoa, he said, could be grown there easily; many plantations for the cultivation of tobacco and coffee were already established and doing very well. A railway stretching across the entire country would soon be completed; the telegraph and telephone wires were already laid, and great progress was noticeable in many other directions. Mr. Wardrop's story was confirmed by the Rev. Father Jackson, a Catholic missionary, who has spent several years in Borneo, and on a visit to Manchester attended the meeting in company with the Rev. Dr. Casartelli. The interest of the meeting was increased by the presence of two natives of Borneo, known as dyaks, or head hunters. They form part of the band which has been sent to England to take part in the Queen's Jubilee celebration, and are believed to be the first of the natives of Borneo to visit Europe.—*Manchester Guardian.*

Honduras and its Banana History is the subject of a consular report by Mr. J. Eugene Jernigan, the United States' representative at Utilla. He states that two islands in the bay of Honduras were the first to engage in banana culture for export, which is now the greatest of all the industries of Honduras. The Consul adds that there are no wharves, piers, or warehouses where vessels can take fruit in the Gulf of Honduras, and in most cases they are obliged by the treacherous coast to anchor a thonsand yards or more off shore, and the plantation owner has to convey his fruit in small dories and skiffs through the surf to the vessel, where it is inspected and received or rejected. The Consul remarks, that the royal road to fortune through a banana plantation in Honduras is a myth. True, millions of the fruit are produced annually, but the price paid the producer in the great majority of instances is not greater than the cost of production and delivery alongside of ship. It would have been interesting if Mr. Jernigan had inquired into the causes of these low prices. Perhaps his district, like that of Belize, is a prey to the monopoly of a shipping company, to whom the merchant or the planter is bound to sell his fruit at whatever price the company likes to give. —*British Trade Journal.*

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

Colombo, Aug. 3rd, 1897.

Exchange on London: Closing Rates, *Bank Selling Rates*:—On demand 1/3⅓; 4 months' sight 1/3 5-32 6 months' sight 1/3 3-16. *Bank Buying Rates*:—Credits 3 months' sight 1/3 9-32; 6 months' sight 1/3 11-32. Docts 3 months 1/3 5-16; 6 months' sight 1/3⅜.

Coffee.—Plantation Estate Parchment on the spot per bushel R15·25 Estate Crops in Parchment, delivery per bus. no quotations. Plantation Estate Coffee, f.o.b. on the spot per cwt. R83·00 Liberian parchment no the spot per bushel, R7·00. Native Coffee unpicked and undrimed per cwt. R50·00 Nominal

Tea.—Average Prices ruling during the week Broken Pekoe, per lb. 53c. Pekoe per lb. 40c. Pekoe Souchong per lb. 24c. Broken mixed and Dust, per lb. 16c. Averages of Wednesday's sale.

Cinchona Bark.—Per unit of Sulphate of Quinine per lb 3¾c.

Cardamoms.—per lb, R2·40

Coconut Oil.—Mill oil per cwt. R13·37. Dealers' oil per cwt. R13·25 Coconut oil in ordinary packages f.o.b. per ton R297·50

Copra.—Per candy of 560 lb. R40·50

Coconut Cake: (Poonac) f.o.b. (Mill) per ton, 85·00

Cocoa.—Unpicked and undried, per cwt. R40·00

Coir Yarn.—Nos. 1 to 8 { Kogalla R18·00 / Colombo R16·25

Cinnamon.—Nos. 1 & 2 only f.o.b. 66c.

Do Ordinary Assortment, per lb 58c.

Ebony.—per ton No sales.

Plumbago:—Large Lumps per ton, R340

Ordinary Lumps per ton, R330

Chips per ton, R175. Dust per ton, R130

Rice.—Soolye per bushel, { R4·10 to 4·40

" per bag, { R10·75 to 11·75

Pegu and Calcutta Calunda R10·00 to 11·25

Coast Calunda per bushel, R4·10 to 4·40

Muttusamba per bushel, R4·15 to R4·65—Scarce.

Kara per bushel,

Rangoon Raw 3 bushel bag —R11·25

Freights.

Cargo.	Per ton London per str.	N. York per str.	Trieste per str.	Mar'lles per str.	Hamb', Bremen &c.
	s. d.	s. d.	s. d.	s. d.	s. d.
Tea	20/	25/	20/	25/	15,6
Coconut Oil	12/6	20/	20/	25/	15/6
Plumbago	12/6	20/	20/	25/	15/6
Coconuts in bags	12/6	..	20/	25/	15/6
Other Cargo	12/6	22/6	20/	25/	15/6
Broken Stowage	7/6	10/	..	..	..
SAILERS.					
Coconut Oil	..	25/		..	..
Plumbago	..	25/	..	..	..

LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Aug. 3rd, 1897.

Esta'e Parchment :—per bushel R14.00 to 15·25

Chetty do dn do R13·00 to 14·00

Native Coffee } per cwt R50 to R60 nominal no business
do F.O.B. }

Liberian coffee:—per bushel R5·50 to 7.00

do clean coffee:—per cwt nominal R36·00 to 40·00

Cardamoms.—per lb R2·00 to 2·30

Cocoa.—per cwt unpicked R35·00 to 40·00

Rice. Market List.

Kazla—per bushel R3·96

1st. Soolye:—R4.30 to 4·40

2nd. & 3rd. Soolye:—R4.05 to 4·18

Callunda·—R4.12 to 4.16

Coast Kara:—R4.00 to 4.08

Muttusamba:—R4·12 to 4·50

Cinnamon.—per lbs. Nos: 1 to 4. at 55c. to 70c.

do do ,, 1. 65c. to 70c

do Chips.—per candy R75·00 to 80·00

Coconuts.—Ordinary per 1000. R36 to 37

do Selected do RR38 to 42

Coconut Oil.—per cwt R13.25 to 13.50

do per ton F. O. B. R305.00

Copra.—per Candy:—R40

Kalpitiya:—R45

Marawila:—None

Cart Copra:—R35 to 37.50

Poonac.—Gingelly:—per ton R85·00 to 87 00

do Chekku. do R90·00 to 95.00

Mill (retail) do R80·00 to 85·00

Cotton Seed:— do R80·00

Satinwood.—cubic feet:—R1·75 to 2·50

Flowered Satinwood od R6· 0

Palu:— do R1·50

Halmilla.— do R1·50 ot 2

Ebony.—per ton R100 to R185

Kitul Fibre.—per cwt R30·00 to 35·00

Palmyra Fibre.—do R12·00 to 16 00

Jaffna Black.—Clean R25·00 to 28

do Mixed R16·00 to R 8·00

Indian do R13·000 ta 15

Do Cleaned Nil

Sapan Wood.—per ton R48 to 60

Kerosine Oil—American per case R7·70 to 7·75

ao Bulk Russian tin 2·75 to 2·80

do Russian in Case R5·50 to 5·75

Kapok.—Cleaned F. O.B :— per cwt R28·00

do Uncleaned do

Croton Seed. per cwt; little business, value varies from R25 to 50

Nux Vomica per cwt R5·00 to 6·00

Plumbago R120 to 300, according to grade.

CEYLON EXPORTS AND DISTRIBUTION, 1896-97.

COUNTRIES.	Coffee cwt Plantation	Coffee cwt N'tive	Coffee cwt Total.	Cinchona. 1897 B'nch & Trunk lb	Tea. 1897 lb.	Tea. 1896 lb.	Cocoa cwt.	C'moms lb.	Cinnamon. Bales lb.	Cinnamon. Chips lb.	Coconut Oil 1897 cwt.	Coconut Oil 1896 cwt.	P'bago 1897 cwt.
To United Kingdom ..	7808	..	7808	140327	62634785	59144768	20400	179596	553613	174712	29081	37119	93088
" Austria	247	2	249	..	3385	29004	..	..	7600	23800	3156	14806	..
" Belgium	..	1	1	..	8495	20617	53	..	41900	55048	500	1919	21502
" France	600	..	600	..	50956	41508	178	...	40000	16160	..	114	307
" Germany ..	179	..	179	..	151143	57897	109	26695	307995	305934	1999	5980	41313
" Holland ..	58	.	58	..	15305	3889	..	..	..	..	..	400	202
" Italy	..	..	..	3132	3724	6777	..	..	86000	54880	269	506	41
" Russia	..	..	..	..	235662	165657	..	..	..	..	...	26	..
" Spain	..	..	..	..	13600	30300	..	..	151260	9240	...	208	..
" Sweden	..	..	...	..	28136	1500	..	..	..	..	303	402	306
" Turkey	..	..	..	..	6020	10892	...	..	..	..	..	..	..
" India	45	..	45	...	516444	608208	5	114243	61	...	85131	33320	342
" Australia	2810	172	2982	..	7519870	6717905	60	25	2400	27880	1873	1830	524
" America	..	..	...	263142	524448	356264	47	..	79828	10000	26054	26578	40532
" Africa	..	..	..	..	116917	48194	..	187	..	..	10	4	..
" China	45	..	45	24873	351051	94897	..	..	..	..	266	2832	369
" Singapore	..	35	35	..	15241	46261	356	..	..	..	29587	25269	..
" Mauritius	..	..	..	..	11790	59494	..	..	..	..	..	..	..
" Malta	..	..	..	..	40910	94700	..	..	..	..	..	..	..
Total exports from 1st Jan. to 3rd Aug. 1897	11792	210	12002	431474	72247882		21208	320746	1270657	677654	178169		198526
do 1896	14586	561	15147	731093	67538732		23550	194667	1068250	457798	151313		195481
do 1895	43703	2602	46305	704034	61739301		2 911	235296	928370	415310	173518		157175
do 1894	17272	465	17737	1632610	55190842		13738	188341	834701	297303	264545		170504

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, July 14th, 1897.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 120s
Zanzibar & Hepatic ,,	Common to good ..	11s a 76s
BEES' WAX, ,,		
Zanzibar & Bombay White ,,	Good to fine ...	£7 a £8
Zanzibar & Bombay Yellow ,,	Fair ..	£6 a £6 10s
Madagascar ,,	Dark to good palish ..	£5 15s a £6 5/
CAMPHOR, China ,,	Fair average quality ...	95s
Japan ,,	,, ,, ,,	110s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	3s a 3s 1d
	Middling, stalky & lean	2s 6d a 2s 9d
Ceylon.—Mysore ,,	Fair to fine plump ..	2s 6d a 3s 1d
	Seeds ...	3s a 3s 1d
,, Tellicherry ,,	Good to fine ...	2s 9d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ...	2s a 2s 6d
,, Mangalore ,,	Med brown to good bold	3s 3d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ...	3½d a 4½d
Madras ,,	..	3½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ..	20s a 37s 6d
CINCHONA BARK.—		
Ceylon lb.	Ledgeriana Chips ...	1d a 3½d
	Crown, Renewed ..	2d a 4½d
	Org. Stem	1¼d a 3d
	Hybrid Root ...	2¼d a 2½d
	Chip ...	1¼d a 2d
CINNAMON, Ceylon 1sts	Ordinary to fine quill...	10½d a 1s 6d
per lb. 2nds	,, ,, ...	10d a 1s 5d
3rds	,, ,, ...	9½d a 1s 3d
4ths	,, ,, ..	8½d a 1s
Chips	,, ,, ..	2½d a 3d
CLOVES, Penang lb.	Dull to fine bright bold	4½d a 9½d
Amboyna ..	Dull to fine ..	5d a 4½d
Zanzibar and Pemba	Good and fine bright	2 3-16d a 2½d
	Common dull to fair ..	2d a 2⅜d
Stems ..	Fair ..	1d
COCULUS INDICUS cwt.	Fair ..	8s 6d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	108s a 120s
	Middling to fine mid .	106s 6d a 110s 6d
	Low mid. and low grown	97s 6d a 106s
	Smalls ...	86s a 97s
Native ,,	Good ordinary ...	65s a 80s
Liberian ,,	Small to bold ...	40s a 65s
COCOA, Ceylon ,,	Bold to fine bold ...	70s a 80s
	Medium and fair ...	52s a 65s
	Triage to ordinary ...	30s a 50s
COLOMBO ROOT ,,	Fair to good ..	20s a 30s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£10 a £16
FIBRE, Brush ,,	Ord. to fine long straight	£10 a £21
Cochin ,,	Ordinary to good clean	£15 a £21
Stuffing ,,	Common to fine ..	£5 a £6 10s
COIR YARN, Ceylon ,,	Common to superior	£12 a £26 10s
Cochin ,,	,, ,, very fine ...	£12 a £34
do. ,,	Roping, fair to good ...	£10 10s a £13
CROTON SEEDS, sift. cwt.	Fair nominal ...	75s
CUTCH ,, ,,	Fair to fine dry ...	9s 3d a 32s 6d
GINGER, Bengal, rough ,,	Fair ...	16s
Calicut, Cut A ,,	Good to fine bold ...	70s a 85s
B & C ,,	Small and medium ..	30s a 68s 6d
Cochin Rough ,,	Common to fine bold ..	23s a 32s
	Small and D's ...	10s a 27s 6d
Japan ,,	Unsplit ...	13s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	17s a 36s 6d
ANIMI, Zanzibar ,	Picked fine pale in sorts	£10 7s 6d a £13
	Part yellow and mixed	£7 17/6 a £10 10s
	Bean and Pea size ditto	70s a £7 12/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	90s a 137s 6d
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ..	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	40s a 62s 6d
Turkey sorts ,,		56s a 85s
Ghatti ,,	Pickings to fine pale ...	20s a 55s
Kurrache ,,	Good and fine pale ...	55s a 65s
	Reddish to pale selected	35s a 45s
Madras ,,	Dark to fine pale ...	35s a 40s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 80s
	Ord. stony and blocky	30s a 37s
KINO ,,	Fine bright ..	£45 a £55
MYRRH, picked ,,	Fair to fine pale ...	82s 6d a 75s
Aden sorts ,,	Middling to good ..	33s a 57s 6d
OLIBANUM, drop ,,	Good to fine white ...	34s a 60s
	Middling to fair ..	20s a 31s
pickings ,,	Low to good pale ...	11s a 12s 6d
siftings ,,	Slightly foul to fine ...	9s 6d a 14s
INDIARUBBER, Assam lb	Good to fine ...	1s 9d a 2s 4d
	Common to foul & mxd.	3d a 1s 6d
Rangoon ,,	Fair to good clean ...	1s 4d a 2s 1d
Borneo ,,	Common to fine ..	1s 1d a 1s 7½d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	11¼d a 2s 3d
Mozambique ,,	Good to fine Ball ..	2s 2d a 2s 7½d
	Ordinary to fair Ball .	1s 2d a 2s 1¾d
	Low sandy Ball ..	10d a 1s 1d
	Sausage, fair to good	1s 4d a 2s 5¼d
	Liver and livery Ball...	1s 3½d a 2s 1½d
Madagascar ,,	Fr to fine pinky & white	1s 11d a 2s 5d
	Fair to good black ...	1s 3d a 1s 10d
	Niggers, low to good...	10d a 1s 5d
INDIGO, E.I. ,,	Bengal--	
	Shipping mid to gd violet	4s 4d a 5s 1d
	Consuming mid. to gd.	3s 4d a 4s 1d
	Ordinary to mid. good	2s 8d a 3s 2d
	Mid. to good Kurpah...	2s a 2s 10d
	Low to ordinary ...	1s 3d a 1s 11d
	Mid. to good Madras...	1s 4d a 2s 6d
MACE, Bombay & Penang	Pale reddish to fine ...	1s 9d a 2s 9d
per lb.	Ordinary to fair ...	1s 4d a 1s 7d
	Chips and dark ..	1s 1d a 1s 6d
MYRABOLANES, Madras cwt.	Dark to fine pale UG...	3s 9d a 5s 6d
	Fair Coast ..	4s 6d
Bombay ,,	Jubblepore ...	4s a 7s
	Bhimlies ...	4s 3d a 9s
	Rhajpore, &c. ..	5s 9d a 7s
Bengal ,,	Calcutta ..	3s 6d a 5s 6d
NUTMEGS— lb.	64's to 57's ...	3s a 3s 2d
Bombay & Penang ,,	112's to 67's ...	1s 3d a 2s 11d
	160's to 130's ..	8d a 1s 2d
NUTS, ARECA cwt.	Ordinary to fair fresh...	12s a 14s
NUX VOMICA, Bombay	Ordinary to middling...	4s a 6s 6d
per cwt. Madras	Fair to good bold fresh..	7s a 7s 6d
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable ..	6s 9d
CASSIA ,,	According to analysis..	5s 6d a 7s 6d
LEMONGRASS ,,	Good flavour & colour...	2⅜d
NUTMEG ,,	Dingy to white ...	3¼d a 4d
CINNAMON ,,	Ordinary to fair sweet...	4d a 1s 3d
CITRONELLE ,,	Bright & good flavour...	1s 1½d a 1s 2d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 15s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	2¾d a 3¼d
Singapore	Fair	3⅛d
Acheen & W. C. Penang	Dull to fine	2 7-16d a 2⅜d
PLUMBAGO, lump cwt.	Fair to fine bright bold	15s a 17s 6d
	Middling to good small	3s 6d a 13s
chips ,,	Dull to fine bright ..	1s 6d a 8s 9d
dust ,,	Ordinary to fine bright	2s a 6s
SAFFLOWER ,,	Good to fine pinky ...	80s a 85s
	Middling to fair ...	60s a 70s
	Inferior and pickings ...	50s a 55s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £35
Chips ,,	... ...	5s a £3
Madras, Logs ,,	Fair to good flavour ..	£30 a £50
Chips ,,	Inferior to fine ..	£4 a £8
SAPANWOOD Bombay ,,	Lean to good ...	£4 a £5
Madras ,,	Good average ...	£4 a £5 nom.
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£6 a £7
SEEDLAC cwt.	Ord. dusty to gd. soluble	70s a 80s
SENNA, Tinnevelly lb	Good to fine bold green	4d a 8d
	Fair middling medium	2¼d a 4½d
	Common dark and small	1d a 2d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	£5 5s a £5 7/6
	D's and B's	£4 10s a £5 15s
	Small	£4
Mussel ,,	Small to bold ...	20s a 50s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	7s a 8s 6d
per cwt. Madras	Stony and inferior ..	4s a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 23s
TURMERIC, Bengal cwt.	Fair	10s a 10s 6d
Madras ,,	Finger fair to fine bold	16s a 17s
Do. ,,	Mixed midlng. [bright	12s a 13s
Do. ,,	Bulbs	8s a 9s
Cochin ,,	Finger	12s 6d
	Bulbs	7s 6d
VANILLOES— lb.		
Mauritius and Bourbon 1sts	Gd. crysallized 3½ a 9 in.	19s 6d a 33s
2nds	Foxy & reddish 4½ a 8 ,,	17s a 26s 6d
Seychelles 3rds	Lean and inferior ..	12s a 26s
VERMILION lb.	Fine, pure, bright ...	2s 1d a 2s 2d
WAX, Japan, squares cwt.	Good white hard ...	45s

THE AGRICULTURAL MAGAZINE, COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for August :—

Vol. IX.] AUGUST, 1897. [No. 2

SEASON REPORTS FOR JUNE.

WESTERN *Province.*—Yala crops thriving generally ; rainfall plentiful ; supply of fruits and vegetables good and prices fair, except in parts of the Kalutara district ; a good yala harvest is expected.

Central Province.—In Kandy district yala crop nearing maturity ; in Matale (rainfall 12·36 in.) propects of paddy good ; in Nuwara Eliya maha cultivation in various stages from sowing to harvesting.

Northern Province.—Jaffna district : threshing of Kalapokam paddy in Karachchi division, in others fields being ploughed and manured. There were a few good showers of rain in Jaffna district but hardly any in Mannar.

Southern Province.—Yala paddy in ear and being harvested in some parts ; a fair crop expected. Rainfall in Galle 6·98 in.

Eastern Province.—In Trincomalee the threshing of the early and late munmari over, yield low owing to damage by floods, the damaged crops are some 30,000 acres in extent ; in Batticaloa pinmari being harvested in some parts, in blossom in others. Still some cattle murrain in Batticaloa district.

N.-W. Province.—Paddy in various stages, prospects good. The rainfall registered in Puttalam town was 3·17 in.

Uva Province.—Crop of malan fields harvested, yield good ; in some places maha crop being harvested : vegetables pleutiful and cheap.

Sabaragamuwa Province.—Paddy prospects favourable in Ratnapura and Kegalla districts, Rainfall at Ruanwella 13·22 in.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JULY, 1897.

1	Thursday ..	Nil	18	Sunday ..	Nil
2	Friday ..	Nil	19	Monday ...	Nil
3	Saturday ..	Nil	20	Tuesday ..	·03
4	Sunday ..	·83	21	Wednesday ..	·14
5	Monday ..	·96	22	Thursday ..	·15
6	Tuesday ..	Nil	23	Friday ..	·14
7	Wednesday ..	·17	24	Saturday ..	·03
8	Thursday ..	·78	25	Sunday ..	Nil
9	Friday ..	·09	26	Monday ..	Nil
10	Saturday ..	·28	27	Tuesday ..	Nil
11	Sunday ..	·76	28	Wednesday ..	·75
12	Monday ..	Nil	29	Thursday ..	Nil
13	Tuesday ..	Nil	30	Friday ..	·20
14	Wednesday ..	Nil	31	Saturday ..	Nil
15	Thursday ..	Nil	1	Sunday ..	·06
16	Friday ..	Nil			
17	Saturday ..	Nil		Total ..	5·37
				Mean ..	·17

Greatest amount of rainfall in any 24 hours on the 5th Monday inches ·96

Recorded by A. R. JEREMIAH.

THE QUEEN AS AGRICULTURIST.

The Queen has during her long regin taken a keen and close interest in agriculture. Debarred by the laws of a limited monarchy from interfering in the internal affairs of Government, the lamented Consort of Her Majecty, the late Prince Albert, early turned his attention to the promotion of every scheme and cause calculated to ameliorate the condition of the citizens of his adopted land. The House of Hanover had always taken an interest in agriculture; the Queen's grandfather, King George III., was "Farmer George;" he loved the country and country pursuits, and was never better pleased than when, free from the cares of State, he could turn aside to examine his flocks and herds and converse with his stewards and bailiffs. But hereditary instinct alone would not have led to the close and

widespread connection of the reigning house with agriculture, had it not been for the advent of the Prince Consort and his enthusiasm for country pursuits. It was a striking tribute to his good sense, and an illustration of his ready adaptability to his surroundings, that, coming from the continent where the State did almost everything for agriculture, to Great Britain when it then did next to nothing, Prince Albert at once adopted English methods, and set about organising all kinds of self-help institutions, or strengthening those already in existence. For twenty-one years, it has been well said, he was in the forefront of every agricultural enterprise, and this period of wise activity was to have been fitly crowned with the presidency of the Royal Agricultural Society of England, in the year of its first great international show, when all the world was startled by the news of his sudden death on 14th December, 1861. It was part of the tribute which the widowed Queen paid to the memory of her Consort that she gave orders for the continuance of all his farming operations on the lines which he had laid down, and thus to understand Her Majesty's position in the agricultural world we must briefly sketch the agricultural enterprises of the Prince Consort.

The first property which H.R.H. set himself to improve was that of Osborne, in the Isle of Wight, which is now under the charge of Mr. Andrew Slater, formerly of Haystoun, Peebles. Incidentally, it may be remarked that Scotchmen have played an important part in the work of the Royal farms, the present as well as the past managers or factors on all of the estates being of Scottish parentage and born north of the Tweed. Mr. William Tait succeeded his father, the late Mr. Henry Tait, in 1882, at Windsor, and only recently Mr. James Forbes has succeeded the lamented Dr. Profeit at Balmoral and Abergeldie. The palace at Osborne was built from Prince Albert's own designs in 1845-46, and the surrounding estates, extending four miles in length and two miles in breadth, were laid out and vastly improved by Mr. Andrew Toward, under the supervision of His Royal Highness. He began experiments in sewage farming in 1851, and the expenditure on this estate during the forties was enormous. The horses used here from the beginning, and, indeed, still on all Her Majesty's estates, have always been Clydesdales. The stud at Osborne in the Prince Consort's time numbered from 24 to 30 head. A Clydesdale stallion was kept, and breeding systematically prosecuted. The other stock in the Isle of Wight are Jersey cattle for dairy purposes and Galloways for feeding. Dorset-horned and Southdown sheep have also been favoured in this department. The Prince was deeply interested in the improvement of the social condition of the labourers, and the cottages built by him were models. This trait has descended to his son, the Sandringham cottages in Norfolk being well known as desirable residences for a rural population.

The estate next purchased or leased was that now known as Balmoral, in Aberdeenshire. It lies near to the village of Crathie, about 52 miles W.S.W. from the Granite City. At first the property was leased from the Earl of Aberdeen, but in 1852 it was purchased. It contains 10,000 imperial acres, but the demesne was further extended by the purchase of Birkhall estate and the leasing of Abergeldie Mains for forty years (1849-89), with final purchase since that date, so that the whole now extends to about 40,000 acres. It is on this estate that Her Majesty spends the greater portion of the year, and here in recent years has been founded a choice herd of Aberdeen-Angus cattle, as well as a small Hackney stud. The herd as made quite a name for itself already, and the fame of Eulenberg and Gentian is widespread. Every care is being taken to extend the usefulness of these cattle, and alike at the breeding and the fat stock shows the Royal blackskins have given a good account of themselves. Even more noteworthy than its agriculture is the forestry of the Queen's Highland property. Under the skilful management of Mr. John Michie a large additional area has been planted, so that on the estate there are now 5,700 acres of well-stocked woodland. This enterprise was commenced by Prince Albert, and probably on none of the Queen's estates did he leave the impress of his genius more clearly than on his Highland estate on Deeside. Doubtless to this is to be attributed Her Majesty's great love for her Aberdeenshire home—for she does nothing by halves. The roads, fences, and especially the cottages on the estate, are all so many monuments to Albert the Good; and it is impossible not to admire the many-sidedness of the German prince who could, and did, so readily adapt himself to the duties of a Highland laird. The traditions of the house have been thoroughly sustained by those entrusted with the control of affairs since the Prince Consort's death, and enthusiasm for the British Royal Family is at white heat in Deeside and Braemar.

Windsor is at once the most extensive and the most varied of the Royal residences and farms. At one time the Queen held five farms in the vicinity of Windsor Castle—the home or Dairy farm, the Prince Consort's Shaw farm, the Flemish farm, the Norfolk farm, and the Bagshot and Rapley farms. The last are now farmed by H.R.H. the Duke of Connaught, who entered on their occupancy in 1880, and all of Her Majesty's sons, it may be said in passing, while they resided in England, had farms of their own.

The dairy farm is that which first meets the eye of the visitor to the Windsor Great Park. It lies contiguous to the castle, and the dairy premises are well worth going a long way to see. They were built from designs by the Prince Consort, and finished in 1855. There is nothing at first sight startling about the appointments, but a leisurely examination reveals a wealth of detail in the construction of the premises which puts to shame anything we have ever seen in dairies, and well calculated to ensure the maximum of cleanliness with the minimum of labour. Space does not admit of a detailed description of these ideal premises here, but the curious will find an admirable account in Mr. Macdonald's article, entitled "Queen and Farmer," in the recent issue of the Transactions. Jerseys and Shorthorn crosses are the dairy cattle made use of at Windsor, but at Invergelder, in Aberdeenshire, the dairy herd is composed of Ayrshires, Her Majesty in this, as in everything else, acting with consummate tact, so that no portion of her subjects should have ground of complaint. Every breed is recognised in its own proper sphere, and, if all are not alike prosperous, the blame cannot be laid at the door of the Queen. The principal homestead

at Windsor is the Prince Consort's Shaw farm, which, curiously enough, derives its name from M. de Shawe, a Frenchman, from whom the property was purchased in the seventeenth century. It has since that date been a Royal farm, but it was greatly improved and extended by the Prince Consort. Windsor Great Park, of which it forms a part, was once a swamp; but now, as visitors to the Jubilee Show in 1889 will admit, it forms the finest pasture in the kingdom. The Shaw farm is the home of the Shorthorn herd, also of a small stud of Clydesdale horses, with the Royal champion of 1892—the Macquhae—at its head, and of a flying stock of Cheviot ewes and the noted breed of Albert White pigs. It is significant of the original state of the soil that sheep, if kept longer than one year, are liable to foot-rot; hence the Southdowns were abandoned, and an annual purchase is made of Cheviot ewes in lamb to a Border Leicester tup. These ewes, along with their produce, are simply kept for one year and fed off. The Shorthorn herd is, however, the great feature of the Shaw farm, and perhaps it has done more than any other agency to bring before the public the work of the Queen as a stock breeder. Alike at the breeding and the fat stock shows the home-bred Shorthorns from the Royal herd have done wondrously, and our plate to-day places before the eye of the reader some of the more notable of the animals recently owned by Her Majesty. The herd is managed by Mr. Tait on thoroughly sound commerical principles. The foundation was laid early in the fifties by purchases from Earl Ducie and other noted breeders. Latterly, however, it has been strongly dominated by Scottish blood, the success of the Sittyton Field Marshal being very noteworthy, and now the stock bulls are Christmas Present and Prince Victor. Clydesdales were first fancied by the Prince Consort as long ago as 1854, when H.R.H. paid 250 guineas to Mr. Findlay of Easterhill for Britain (86). The produce of that horse sold well, some of them making £100 and up to £150 a piece. At the Royal Jubilee Show in 1889 Her Majesty was first with the two-year old horse First Choice, and three years later the Royal stud horse was champion at Warwick.

The Flemish and Norfolk were in the hands of King George III., and were originally so called because they afforded occular demonstration of the two systems of farming indicated by their names. Great improvements were made on the Flemish farm in the way of drainage and the steam farm was here shown at work during the International Show at Battersea. Here also the Royal herd of Hereford cattle is found. It was established in 1855 by purchases from the Earl of Radnor, and a bull named Brecen was purchased in 1856 for £120. The Devon herd was founded on the Norfolk farm in 1856, and the first show yard successes of the Royal herd are at the credit of the "rubies." Prince Albert first exhibited at Smithfield Club in 1843, and in 1849 he first exhibited Devons, in 1850 Shorthorns, and in 1859 all the stock exhibited were home-bred. The success of the Royal Exhibits of home-breds during the past few years has been phenomenal. No other exhibitor of stock has been as the Queen within the same period with animals solely of his own breeding. Besides pedigreed stock. a large number of sheep and cattle are fed on the Flemish farm and sold off by auction at Smithfield Invariably high prices are realized and the whole appearance of the animals bears witness to the thoroughly sound principles upon which Her Majesty's agricultural enterprises are conducted.

Whatever be the fate of English agriculture in days to come, the Royal family will be sharers in its prosperity or adversity, the bright traditions of the reign of Queen Victoria will be honoured and observed for many a day.

OCCASIONAL NOTES.

We are glad to find that there seems to be a probability of manures being manufactured locally, and, indeed, the samples which we have seen of the stuff turned out by way of trial, go to show that the art of manure-manufacture is well understood by the maker, not only as regards the regulation of the proportions of the important ingredients of plant-food, but also in the matter of disintegrating and mixing. We shall refer more fully to these local manures as soon as they are offered for public sale.

The "Cocoa dialogue" as the contribution to the last number of the Magazine on the subject of the Cocoa pest has been termed, was a distinctly valuable addition to the 'literature' on the subject. The writer of the dialogue, be it noted, has not only held the views he promulgates therein, but has practised them on his estates (which are free from the ravages of *Tomicus perforans*,) and so supplied the "Q. E. D." of later hypotheses as regards "Suckers" and the cocoa pest.

We are glad to announce that Government has sanctioned the experiment in bee-keeping referred to in our last issue, so that the stocking of the hives, which have been specially constructed for us will be undertaken at the earliest opportunity, and the progress of the new venture will be reported from time to time in the pages of the Magazine.

A sale of stock drafted from the dairy herd took place at the end of June, and the prices realized were fair. The output of milk at the dairy, which at the beginning of the year was a good deal short of the demand, has increased considerably, and the supply at present average 50 gallons a day. A new wing, to hold about 25 animals, and principally intended for the accommodation of the young growing stock, has just been added to the dairy.

Dr. Voelcker's contribution with reference to "Malt Coffee" warns us that there is just a possibility of some substitute for the genuine article springing up to compete with tropical products. Tea substitutes we have had galore, but none has succeeded in affecting to the slightest degree the popularity of our staple product, and it is satisfactory to learn on the high authority of Dr. Voelcker that there is no likelihood of there being a reversion to what is said to be an old practise, viz., the use of barley as a coffee substitute.

The suggestions with reference to agricultural education made by Mr. Davidson, in his report as Assistant Government Agent of Kegalle, are such as will commend themselves to all who have

thought over the possibilities of stimulating the native agriculture of the Island. We have ourselves made similar recommendations off and on, but in this country it is necessary to have an accumulated mass of corroborate opinion gathering to a head before one can hope to roll away the obstacles which those whose policy should be to promote the prosperity of the indigenous population by the adoption of all reasonable and tried measures, are ever ready to place in the way of advancement and reform.

WOOD ASHES.

The use of wood ashes for manurial purposes dates from a very remote period, and the chief if not the only object held in view by its use as such is to supply the potash required by plants. Whether wood ashes fulfil this requirement is another question, with which we are at present not concerned.

To some extent the composition of the ash of wood varies according to the sources from which the wood has been obtained, that is to say according to the kind of plants from which the wood has been got. It also varies according to the parts of trees used, for instance, as Warrington points out in his *Chemistry of the Farm*, the ash of young boughs is richer than that from full-sized timber. In rural districts where twigs instead of split wood are the chief kind of fuel used, we would expect to find a rich ash. In this connection we might also refer to the common use of the leaves, shells and husks of the coconut for burning, whereby a form of ashes that can hardly be characterised as "wood ashes" is produced. Dr. Falconer King, the City Analyst of Edinburgh, gives the following ratios representing the quantity of ash from different parts of plants: taking wood as 1, the ratio for other parts are, seeds 3, stem and straw 5, roots and tubers 7, bark 7 and leaf 13. As regards the composition of wood ashes, out of seventeen samples analysed at the Connecticut Experimental Station last year, the ingredients varied from 2 to 7 per cent of potash, $1\frac{1}{8}$ to 2 per cent of phosphoric acid, with an average composition of potash 5 per cent, phosphoric acid $1\frac{1}{2}$, lime 26, sand and soil 15, and charcoal 2 per cent.

But the value of wood ashes varies most according to the condition in which it is obtained, that is, according to the treatment which it has under gone after it has been produced. It is a common experience to find ashes left exposed to the sun and rain which help to materially lower its value as a potash manure. It has been found by analysis that while the potash in "unleached" wood ashes varies from 2 to 8 per cent, that in "leached" wood ashes varies from 1 to 2 per cent only. Leaching or letching is the process by which water is made to pass through wood ashes, in order to separate the alkali in the production of lye. Now this is just what often goes on when ashes are left exposed to our tropical rains, the result of which would tend to justify the advice which we read in an American Exchange, viz., "Wood ashes should be produced on the land and should never be bought, as the price of the potash contained in them is, as a rule, far too high to justify their purchase." We would remark, however, that this applies to a country where 45s. is asked for a ton of wood ashes. But where the stuff could be got at about half the cost, and where, moreover, it is possible to insist on the ashes being protected against sun and rain, the advice given above is not altogether justifiable.

The Connecticut Experimental Station has arrived to the conclusion that in addition to the value of wood ashes as a fertilizer, they must also be regarded as a source of lime in the form of carbonate, and is inclined to attribute their admirable effect on many soils to the lime quite as much as to the other elements contained in it.

In view of the importance attached to potash manures in scientific circles, as the result of careful experiment to estimate its value as a fertilizing agent (*vide* articles on "Potash and Potash Manures" in the Magazine), all tropical cultivators would do well to conserve, and obtain wood ashes from every available source for application to their land in conjunction with their nitrogenous and phosphatic manures.

FRUIT CULTURE.

(*Continued.*)

Respiration of Active Roots dependent on the Mechanical Condition of the Soil.

It cannot be too strongly impressed upon the cultivator that the roots of trees are not passive occupiers of the ground, but have vital functions to perform which require the soil to be presented to them in a suitable mechanical condition. *They have to respire.* If the soil around them be so compact as to exclude air, or if it be drenched with water so as to drive the air out of its interstices and keep it out, the roots will infallibly die. In fact they can no more do without the small quantity of air they need than animals can do without the enormous supplies necessary for their more active respiration. The difference is one of degree only. The respiratory process is the same, consisting in the intake of atmospheric oxygen, its use to oxidize carbon compounds, and the subsequent output of carbonic acid. But because vegetable respiration, even from the leaves, is very sluggish, and masked from observation by the much more active work of assimilating carbon to build up the tissues, it is apt to be overlooked. And from this ignoring of a vital necessity spring some of the worst errors in cultural practice. We have enumerated certain mineral soil-contituents which must be present amidst the vast bulk of earth the planter has to deal with. It follows from the above that besides these, and in far greater bulk, there must be present *air* and *water*. The only way in which these two elements, a gas and a fluid, can be secured for the service of the roots is by breaking up the soil into a more or less powdery, porous, open condition by mechanical means. In the interstices of the separated particles of earth there enters an abundant modicum of air, nearly equal in cubic measurement to the bulk of the solid matter of the soil. One may almost predict the degree of success of any crop by the degree to which atmospheric air has been mixed up with the earth it is to grow in. The traditions of agriculture unconsciously point to the same

truth. To till land is to mix the top stratum with air. Coarse ploughing of wet lands is leaving the great slab-like clods lying loose to dry out their water and absorb air instead. Harrowing among other ends, mixes air very complcely with the loose tilth. But the most thorough and effective addition of this necessary ingredient is obtained by the process of *trenching* By trenching almost every cubic inch of soil is disassociated, large cavities full of air are left open among the loosely thrown up earth, and although these diminish a good deal by pressure of the superabundant material, yet the air they contain forces its way into the microscopic interstices between particles far smaller than grains of sand.

So much for the air supply demanded by the root respiration. Let us consider the water supply. It is unfortunately the current belief that trees must have water given to them much in the same way as one waters a house. Either whole bucketsful are poured in at the base of the trunk, or (in irrigating) a stream is turned on to flood its surroundings. This is in direct opposition to the way in which trees take up their water supply. "It is characteristic of the mode of life of land-plants," says Sachs, "that they only flourish as a rule, when their roots are evenly distributed throughout a soil that is relatively dry, only partially flooded with water." The practice of agriculture bears testimony to this fact that damp lowlying lands are made highly fertile by an adequate drainage which renders them relatively dry. The culture of plants in green-houses teaches that land plants rooted in pots very easily perish if they are watered too often, and one of the first lessons a garden apprentice receives is "to keep his watering can quiet." Land plants, and particularly trees, carry on their root-functions continuously only when the soil surrounding them is relatively poor in water. A complete saturation must be very brief and soon relieved by draining away, or else it acts injuriously. Let us consider how the enormous losses of water by daily transpiration from the leaves are made good by inbibition from soil, not wet but only just perceptibly moist to the touch, and therefore in the best possible condition for sustaining healthy root-growth. Every minute particle of earth, even down to those too small for distinct vision, is enveloped in a thin film of adherent water held fast by surface attraction, almost as if it had been dipped in water and brought out wet. Where particles by reason of their angular shape happen to get closely together, the attractions combine to hold a thicker watery layer. The remaining interstices are filled with air. Among these surface-wetted particles the root hairs make their way, clinging tightly to them with their porous cell-wall and absorbing such part of the watery layer as they touch. It needs little knowledge of the laws of diffusion and capillary attraction to see that the fluid so absorbed is made good by neighbouring water-particles, and that, given absorption at any point, an indraw takes place towards it. Every root-hair then is a centre of attraction to the water constituting the moisture-layer of all particles of earth within its range. And such absorptions, multiplied by millions, amply supply the almost incredible number of gallons of water daily transpired as vapour from the foliage of a large tree.

But have these physiological facts any value in practical work? Much every way, as we shall see.

(*To be continued.*)

THE RECENT HORSE PLAGUE AT MANNAR.

An epizootic among horses and donkeys broke out at Mannar about the latter part of March. Only a comparatively few donkeys succumbed to the disease; but the number of ponies attacked up to the 4th May was about fifty, and of these none recovered. A similar outbreak is reported to have taken place some twelve years ago.

It is needless to say that a veterinary surgeon would have been the fittest person to investigate the nature and cause of the disease, and it is rather unfortunate that such an officer could not have been present on the spot during the outbreak. In the absence, however, of any information from a veterinarian, we have to rely on the reports of the Adigar and the District Medical Officer of the place. The report of the latter especially is very welcome, under the circumstances.

The most striking symptoms, as given by the Adigar, are that the animals begin to lose flesh, and in the course of 20 or 25 days they are reduced to mere skin and bone, fall to the ground and die.

The Medical Officer goes more into details and describes the symptoms as follows:—"Loss of appetite, great thirst, dyspnœa, constipation, restleesness, inability to walk, and when attempting to walk the horse falls down. While in the recumbent position, he shows restless movements of the limbs and body. In some cases there was no passing of dung at all, and in others the dung passed was dry and scanty. Most of the horses were found dead by the side of waterpools or ponds. Fast breathing was a very noticeable symptom."

This description of the symptoms would have been more complete had we been told whether the respiration was thoracic or abdominal, and if a record had been kept of the temperature and pulse as well as of the number of respirations, per minute, at stated intervals during the progress of the disease. Auscultation and percussion should have been helpful to the diagnosis. The nature and quantity of the urine ought to have been noticed, and the condition of the skin and mucous membrane also observed.

The postmortem examination held by the Medical Officer however gives some valuable information. He examined three carcases and found the lungs inflamed in all of them. In the first case, except $\frac{1}{3}$ of the lungs the rest was all inflamed, and this horse died in the first stage of pneumonia. The second horse examined died in the second stage of pneumonia. The other one died in the first stage. As the result of his examination, the Medical Officer feels certain that the horses died of an epizootic form of pneumonia. It would have been useful if the pleuræ were also specially examined in order to find whether they were involved in the inflammatory condition.

The Adigar thinks that the disease was caused by feeding on bad pasture. During the heavy

rains, he says, the grass on the "Tharavas" rotted under a mixture of sea and rain water, and was converted into a moss-like substance which the horses used to eat while grazing.

The Medical Officer, however, writes as follows:—"The exciting cause of this disease, I believe, is change of season,—a season of plenty of rain and pasture changing to a season of drought."

The identification of the disease is an important matter from a veterinary point of view. It is not likely that this horse plague at Mannar is a new disease which has not been described in standard works on veterinary science. I am inclined to think it is identical with what Prof. Williams calls Epizootic Pleurisy or Pleuro-pneumonia of the horse. The Professor says: "In 1861 to 1862 this form of epizootic disease became very prevalent in the north of England, where it raged for many months, committing great havoc amongst horses of all kinds, but particularly amongst those most exposed to the vicissitudes of the climate. It has prevailed more or less ever since, both in town and country, more particularly amongst young horses and those removed from pastures into stables. *** Alternations of heat and cold are undoubtedly the most prolific causes, for the disease prevails mostly when the winds are cold and the heat of the sun more or less powerful."

The treatment of this disease as recommended by Prof. Williams consists mainly of proper hygienic measures and nursing. He condemns the employment of the so-called heroic remedies such as purgatives, bleeding and blisters. Complete rest, warm clothing, comfortable housing in a well-ventilated loose box, but avoiding draughts are specially recommended by him. During the premonitary fever the animal is to be allowed an abundant supply of cold water to drink with nitre dissolved in it. Bran mashes and linseed mashes are to be given to keep up a laxative condition of the bowels, and these may be supplemented with enemas when necessary. If the alternations of the temperature of the skin be very marked, two or three doses of spirits of nitrous ether are to be daily administered in warm water. When the fever is high and the symptoms are acute, great benefit may be derived from ten minim doses of Fleming's tincture of aconite given two or three times a day. Vet. Surgeon Hayes is of opinion that the fever is of a malarious character and suggests treating it with quinine.

Opium in the form of laudanum is recommended to relieve the pain caused by the inflammation of the pleura. The laudanum is combined with moderate quantities of linseed oil so as to prevent its constipating effects.

Warm fomentations to the sides followed by the application of weak ammonia liniment will give great relief. As the local inflammation progresses the dose of nitre given in the drinking water is to be slightly increased. From one to two ounces of this salt may be given in the twenty-four hours; and when it causes excessive diuresis it must be lessened again or discontinued altogether. If, however, nitre fails to stimulate the kidneys sufficiently, a few doses of tincture of colchicum seeds will be of great service. Vegetable tonics may be given in the latter stages or during convalescence, combined with carbonate of ammonia.

If the appetite is much impaired, the horse must have an allowance of milk to drink instead of water. If the milk is refused, the animal must have gruel, linseed tea, hay tea. &c; but nothing in the shape of food must be forced upon it.

Suppression.—Prof. Williams says:—"When the character of the outbreak is mild the disease seems to be non-contagious: when violent or acute, it presents such marked signs of being contagious, that even the most sceptical is forced to believe in this method of propagation."

It is scarcely necessary, therefore, to add that, when this disease assumes an epizootic form, isolation and segregation suggest themselves as important suppressive measures.

E. T. HOOLE.

Anuradhapura, 19th July, 1897.

INSECT PESTS.

(*Continued.*)

It is evident that one cannot make use of preventive and remedial measures to the best advantage unless he has some knowledge of the insects with which he has to deal and of their habits. The planter or cultivator is as a rule a very busy man and cannot be expected to afford the time required for the study of the complex lines of his insect foes entirely by himself; but he should sufficiently acquaint himself with Entomology to be able to understand fully the reports on injurious insects which may be available to him. He should learn the names of his common insect foes, the characteristics of their attack and the different stages of life through which they pass, and he should confirm as far as possible the statements he reads by his own personal observations which is generally quite an essay matter, and will aid him greatly to remember about the insects. Every insect has several stages in its life and is often much more easily destroyed in a stage that passes unrecognised, because the insect then does little or no damage, than in the stage when it is injurious.

In general there are four distinct stages of existence in the life of an insect:—the egg, the larva, the pupa, and the imago. These stages may differ so greatly from one another that those who are not acquainted with insects would never suspect their relationship. Until all the stages of an insect are known, it is not possible to say with absolute certainty at what period of its life the insect may be most easily destroyed.

Such study as this constitutes economic entomology which might be defined as the study of insects injurious to the agricultural and other interests of man with a view to discovering methods for preventing or checking their ravages. As a rule such study is laborious and surrounded without difficulties. Many years of observation are often required to trace out the round of life of a single insect. Progress is necessarily slow, and even in those countries where most attention has been given to the subject comparatively few insects have been thoroughly studied. As might be expected the United States leads in the line of research. Her immense agricultural interets have forced her to it. The losses there have also been greatly in excess of any other country, owing

principally to the vast areas devoted to special crops and the importation of foreign insects.

It not infrequently happens that, owing to climatic differences, the habits of an insect in one country differ from its habits in another country. In different countries, also, the effects of certain insecticides are different, not only to the insects they are used to destroy but also the foliage. It is therefore often necessary to confirm the habits of an insect when it is found in a new country before advising means for its destruction which have proved successful in other countries, and likewise to demonstrate the efficacy of the insecticide even if the habits of the insect are similar.

BLOOD-MANURE.

We are accustomed to hear the native cultivators of the Island spoken of as conservative to such a degree that native agriculture is practically at a standstill. There are, however, instances in which the charge of conservatism (if it is nothing more) may be laid at the door of their more enlightened brethern, the planters, whether of coconuts or other products. One instance of this that has been brought to our notice is the chariness which is shown in the use of "new" manures, new in the sense that they have not been used on Ceylon plantations. Blood manure is a fertilizer that is not kindly looked on here, though next to the well-known chemical salts, sulphate of ammonia and nitrate of soda, it is the most nitrogenous manurial substance. In a (cash) price list of manures (drawn up in February of this year) which we received by a late mail, we find the following values given for the three above-mentioned fertilizers: Sulphate of ammonia, 95% pure, 20% nitrogen—£7 15s. per ton; nitrate of soda, 95% pure, 15½% nitrogen—£8 5s. per ton; and dried blood, 14% nitrogen—£7 per ton. The unit value of nitrogen in each of these manures are given as follows: Sulphate of ammonia, 7s. 9d.; Nitrate of soda, 10s. 8d.; and Dried Blood, 10s. These figures ought to convince the sceptical that Dried Blood is one of our most valuable fertilizers, and eminently suitable for perennial crops, for which indeed the two chemical salts are not.

Here is a specimen analysis of Dried Blood manure, given in the *Agricultural Gazette* of New South Wales, made by the Departmental Analyst:—

Moisture	11·30	per cent
Substances volatile at red heat	80·93	" "
Containing nitrogen 10·08		
Equal to ammonia 12·24		
Substances soluble in acid ...	4·31	" "
Phosphoric acid (P_2O_5) ...	·62	" "
Potash	·42	" "
Lime	·87	" "
Magnesia	traces	

The manure is there valued at £6 15s. per ton.

In choosing manures for their nitrogen what should be done is to compare their values after calculating it out by assigning the value per unit to the nitrogen. By doing this, there will be great scope for practising economy in manuring.

Blood-manure of excellent quality is now being manufactured locally, and we believe is also being offered much below its real value. We have heard further of a local firm that has facilities for importing dried blood, but that there will be but a poor demand for the fertilizer.

MALT COFFEE.

From a Consular Report on the trade and finance of Bavaria it appears that a considerable trade is done in that country in the manufacture and sale of a material called "malt coffee." This material is nothing more than barley grain or malted barley (more generally the former) which has been roasted and is then used either alone, as a substitute for genuine coffee, or mixed with genuine coffee, just as chicory is, to form a much cheapened article. It appears to be used as a beverage among agricultural labourers in Bavaria, and it has been suggested that, owing to its cheapness, it might advantageously be used by the agricultural labouring classes in England, and would at the same time open up a way of further utilizing barley to the benefit of the agriculturist generally as has, it seems, been the case in Bavaria. Th, report above mentioned states that in 1894 the sales of malt-coffee amounted to about 3,800 tonse and increased in 1895 to about 5,200 tons. At the factory of Messrs. Kathreiner & Co., at Munich, 181 people are enployed, and a new factory engaging 162 persons has been opened at Uerdingen on the Rhine.

Malt coffee is sold in packets of different sizes, and it is reckoned that a cup of malt coffee can be made at a cost of one-tenth of a penny.

At the request of Sir John Thorold I made a chemical examination of the malt coffee, obtaining some from Germany for the purpose. I made also extracts of this and compared it with similarly-made extracts obtained from genuine coffee and from mixtures of coffee and chicory sold in England under the name of "French" coffee and "Swiss" coffee. The malt coffee is richer in nitrogenous matters than the the French or Swis coffee, but has less mineral matter and more fibre. By analysis of extracts of these three as well as of genuine coffee, the richer character of the genuine coffee and the inferiority of malt coffee to even the other mixtures was brought out. (We omit the tables of analysis given.)

The much larger proportions of nitrogenous matters and of mineral constituents in the genuine coffee come out very clearly in the analyses the "malt" coffee extract being the poorest of all. Of course, however, the great value of genuine coffee consists in its containing the alkaloid substance caffeine, which is not present in the "malt" coffee, nor in other substitutes for coffee.

The malt coffee is ground in a mill just like ordinary coffee, cold water is then added, and the whole brought up to boiling point. The liquid is then allowed to settle, or is passed through a strainer. The malt coffee is either used alone, or it may be mixed with a certain proportion of coffee and the two boiled together with water.

No one taking the malt coffee infusion by itself would be misled into the belief that it was genuine coffee, but Sir John Thorold assures me that labourers on his estate have tried it and found it an agreeable drink. I may say that I also tried

the experiment of using it, putting at first only 5 per cent. of the malt coffee to 95 of genuine coffee, and gradually increasing the proportion of malt coffee. Though the coffee was never exactly "relished" yet, by varying the admixture very gradually, it was not until the proportion of malt coffee had reached 50 per cent. that the presence of some admixture was strongly marked.

Whether our labouring classes will be content to economise by using this material is, however, very doubtful indeed, though, on the face of it, it would appear just as good to use an article like barley as to employ chicory for mixing with coffee, the mixtures being frequently preferred to the genuine article. I am informed that the practice of making a kind of coffee from barley is not a new one even in this country, but it was given up as the age became more luxurious and the working classes better off. Nor are they I think, likely to revert to it, or to provide a stimulus to barley-growing by the hope of the extended use of that grain as a "coffee substance."—*Dr. Voelcker in the R.A.S.E. Journal.*

POTTING FIBRE.

The following is a racy and instructive report by the Government Botanist of the Cape on a sample of "potting material"—which our readers will at once identify as the patent growing medium which is now in our local markets. The report is one which our local horticulturists, particularly those who go in for horticulture, should carefully read and digest. As for the fibre itself, though there may be no new discovery about it, it cannot be denied that it is what amateur gardeners want, and, if they are willing to pay for it in the convenient form in which they can get it, well, nobody is hurt:—The potting material you send is very good of its kind, and will doubtless do excellent service in a large class of your propagating work. But there is no new discovery about it. I daresay all professional gardeners whose work has lain among greenhouse plants, have for fifty years past been accustomed to make up similar compost with coir waste, coconut fibre refuse, as it is called, with decayed sphagnum and fibrous peat. Then all on a sudden, somebody *invents* it, like a new pill made out of familiar old drugs, pushes it well and makes a good thing of it. To this commercial hanky-panky there is not the slightest objection. And such popularising of trade-processes, and making technical dodges easy for amateurs, has its beneficial side. See now how this potting fibre business works in practice. Madame sets out her flower-stand at the window with half-a-dozen geraniums or fuchsias, purchased in high condition from the nurseryman. She knows that plants want water, so every morning she pours the best part of a pint of it into each flower-pot with religious regularity. You know what happens in a few months. The fuchsias look ready to perish, and begin to drop their leaves; the geraniums stop growing and buckle up. Then the gardener is called in to advise. He knocks the ball of earth out of the pot, and shows Madame that all the roots have been sidling away from the earth, and have made a close network, lining the sides of the pot. He points to the soil compacted at the surface, and perhaps covered with the first stage of moss-growth. His verdict is that the soil has gone "sour" through inconsiderate over-watering, and says the plant must be re-potted. His practice is unimpeachable—it must be done—but his theory is all abroad. What is sourness? A crab-apple is sour, last week's dough, kept over, is sour, so is some very clever people's wine—dead sour. But it is hard to see how soil, that is, earth, can be such sort of sour, since it presents no acidity to the tongue. The fact is, this gardening phrase is just a manner of speaking, a word without an idea, a flash note on the Bank of Ignorance. One mustn't let people think we don't know. And, as Mephistopheles waggishly reminded the divinity student,

"Denn eben wo Begriffe fehlen
Da stellt ein Wort zur rechten zeit sich ein,"

It is just where the meaning fails that a *word* comes in so handy. Think a minute, however. The constant water-pouring has closely compacted the earth, till at the surface it is like wet mortar, and is quite impervious to air. Trickling through the mass, it has long ago dissolved out and carried down into the saucer all the soluble mineral salts required by the plant. Here are the two causes that bring about for the roots asphyxia, or stifling, and starvation. The roots have done what they could. They have crept in a white network close to the side of the pot, clinging to it because it is porous, and lets in a little air. Had the pot been glazed or made of metal, and therefore not porous, you would have had none of that stratum of rootlets trying to breathe through it. Clearly, the remedy is re-potting in fresh porous mellow earth, full of air and of the small percentage of nitrates, phosphates and potash salts which go to make up plants' mineral food, together with intelligent watering only when it is needed, or rather, keeping the soil relatively dry, so as never to drown the air out of it. So, the fuchsias and geraniums take out a new lease of life.

And I daresay the popularising of potting fibre in one form or another will bring about much better results, in amateur horticulture of the greenhouse sort, than we have been accustomed to see. The fibrous compost will stand a great deal more careless and unskilled use than would the ordinary mould taken haphazard from the borders, and on which many a window-gardener depends with touching simplicity. It is garden soil—what more would you have? So demand the unskilled. But the potting fibre will help them in spite of themselves, if they only keep their watering cans reasonably quiet; and will bear up against a deal of mismanagement. You ask as to the mineral salts that impregnate the fibre. Well, I do not pretend to tell you exactly what is used as the trade process, but if I were asked for a formula of a nutritive solution, I should give the proportions of salts which are used in experimental "water-cultures," as they are called. A mealie seed, for example, is caused to germinate at the surface of a solution of certain salts, and with proper care it will grow, blossom, and perfect its fruit. On this most interesting experimental investigation, and the knowledge it leads to, consult Sachs' "*Lectures on the Physiology of Plants,*" translated by H. Marshall Ward, Oxford, royal 8vo., 1887, pp. 282-295. It will be in

your public library. The formula is about as follows:—

Water	7 gallons.
Potassium Nitrate (Nitre) ..	1 oz.
Sodium Chloride (Common Salt)	$\frac{1}{3}$ oz.
Calcium Sulphate (Gypsum)	$\frac{1}{2}$ oz.
Magnesium Sulphate (Epsom Salts)	$\frac{1}{2}$ oz.
Calcium Phosphate, finely pulverised	$\frac{1}{2}$ oz.

Here you have every mineral constituent required by a healthy plant, and it is fair to expect that a judicious treatment of your potting fibre with this solution, before use, will result in vigorous growth of the plants it carries. The only danger in these trials is that of being too liberal with the chemical ingredients. Remember a very little is food, a little more is medicine, and more still is poison and sudden death.—P.M O.

GENERAL ITEMS.

The development of the coconut industry out of the Island must in time be expected to, if it is not already doing so, affect the local trade. The *Sydney Mail* of May 8th records the first shipment of coconut oil manufactured in Australia, the event being calculated by a luncheon given by the manufacturers. The mill which is turning out the coconut oil is said to have cost £60,000. Owing to the deficient supply the mill only worked 10 weeks since January when it commenced work, but during that time 1,600 tons of copra were crushed which yielded, besides a large quantity of oil, 700 tons of coconut cake, or, as we called it locally, *poonac.* The mill is about to be extended, and the orders for cake are said to be so great, that night and day work will not overtake them. The coconut cake industry is apparently a phenomenal success, owing to the patronage from dairy farmers by whom it is much sought after. The oil is being principally utilized for "sunlight" soap-making.

The attempt to introduce improved implements amongst the agriculturists of India is meeting with some success, says the Lahore paper. A new form of plough called the Baldeo plough, alter Baldeo, the head mechanic of the Cawnpore Farm Workshop, is being bought throughout Northern India; it is cheap and efficient and turns out better work than the old plough. For harrows, water-lifts, and chaff-cutters, of a better type, a demand is commencing; and gradually the farmer of Northern India is awakening to the fact that the methods of his forefathers are not necessarily the best or wisest, though they have been sanctified by the custom of centuries. So says the *Indian Agriculturist.* When, we ask, is the Ceylon Government going to give our goyiyas a fair chance of adopting improved implements in their cultivation?

As a result of experiments made with the "Baby Separator" at the Saidipat Farm, it was found that the amount of butter fat in the milk of cows kept on the College farm averaged 4·68 and 3·93 for the morning and evening milk respectively, as against 7·34 and 4·82 per cent for buffaloes' milk. The percentage of butter fat found in the separated milk was—morning yield, cows ·13, buffaloes ·12; evening yield, cows ·13, buffaloes ·17. In separating the cream the "Baby Separator" was found to act exceedingly well even with buffalo's milk, the separation, as in the case of cow's milk being, to all intents and purposes, complete.

The proceedings of the Agri-Horticultural Society of India for the months, January to March, 1897, contain some interesting correspondence relative to the Rush-nut (known to botanists under the names of *Cyperus bulbosus* and *Cyperus esculentus*), a very common article of consumption among natives of India, to whom it is known by the name of *naseru.* It comes into season during the hot months, and is then much valued for its cooling and nutritious qualities. The little black, hairy bulb, about the size of a pigeon's egg, is not pleasant to look upon; but when the outer skin is removed, there is disclosed a crisp, creamy nut, luscious, cool, and sweetish to the taste, with a pleasant flavour all its own. These nuts are rich in albumen, gum, oil, saline matters, and oxide of iron, and our Yankee friends, more appreciative of these virtues than ourselves, cultivate it on a large scale, and manufacture from it the "Chufas" coffee and "Chufas" chocolate. *Cyperus bulbosus* is the Chilanthi arisi of the Northern Province which is there used after grinding into a meal in times of scarcity and at other times also eaten roasted or boiled. The sedge grows freely in the Island of Delft. Its close ally is *C. rotundus*, the Sinhalese Kalanduru, which is a common weed in most parts.

The fibre of *Hibiscus Tiliaceus* (Sinhalese Belipatta), referred to in the last report of the Director of the Botanic Gardens, is one of the oldest and best known of fibres among the natives, who use it both in the rough and prepared condition as rope.